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# FIRE ENGINEERING

*The Journal of the Fire Protection Profession Since 1877*

OCTOBER, 1954

**FIRE CHIEFS' CONFERENCE**
**AND**
**BUYERS' GUIDE ISSUE**

A CASE · SHEPPERD · MANN PUBLICATION

# These Advantages Add Up!

## SIMPLICITY.

In breathing emergencies speed saves lives, and simplicity means speed. Emersons have it.

## SAFETY.

No instance has ever been recorded of injury from the gentle pressures used. Since approval by the American Medical Association in 1942 thousands of cases have been treated, all safely, including adults, children, and even newborn babies. An important safety factor is the suction phase, which gives vital aid to the circulation by helping the heart to fill normally.*

## EFFECTIVENESS.

Extensive medical research has found immediate positive-and-negative resuscitation to be the most effective life-saving measure in asphyxial emergencies. (Manual artificial respiration, however, should be used as first aid, if a resuscitator is not instantly available.)*

## ADAPTABILITY.

Standard models can be adapted for dual, triple, or quadruple use. Extension hoses can bring full protection to victims more than 400 feet from the parent machine. Manifolds are available for Civil Defense protection.

***Write for circular on the newest models.***

****Write for free bulletins "Medical Reference on Resuscitation" and "A New Manual Method of Artificial Respiration."***

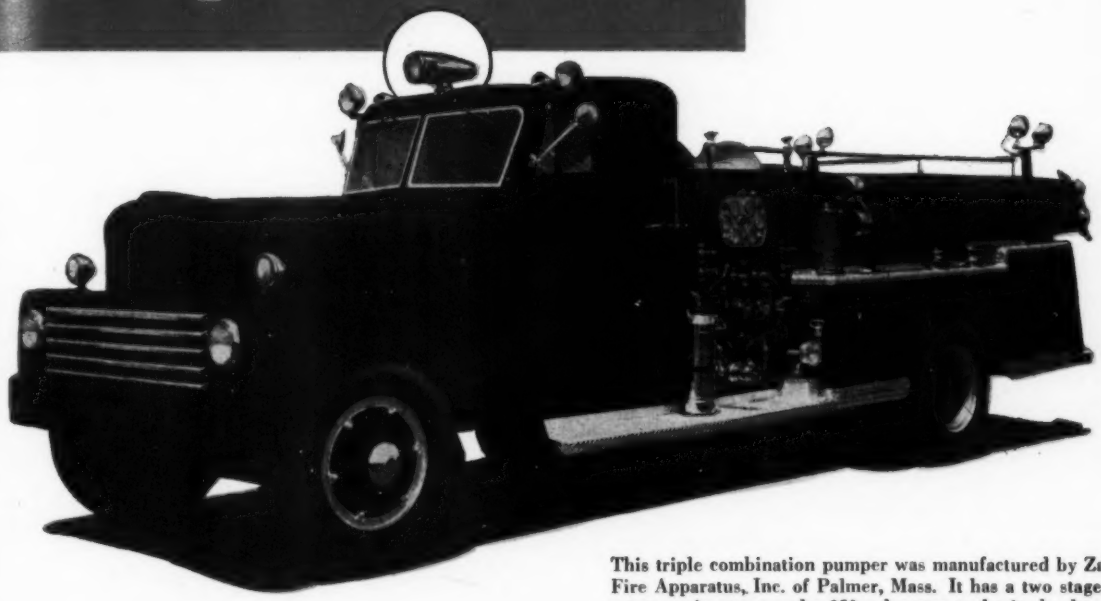
## *EMERSON RESUSCITATORS*

***Can Help You Save Lives***

## J. H. EMERSON COMPANY

32 COTTAGE PARK AVENUE, CAMBRIDGE 40, MASSACHUSETTS

# Reputation



This triple combination pumper was manufactured by Zabek Fire Apparatus, Inc. of Palmer, Mass. It has a two stage 750 g.p.m. main pump and a 350 gal. water tank; it also has two booster reels and five enclosed compartments. The warning protection is a Federal 66-LR Siren.

Reputations, like fire trucks, require time to build. A business survives and grows by building a good reputation, and to do so it must build a good product. A manufacturer of a reliable fire truck is vitally interested in the reputation and dependability of *every* component part. Zabek Fire Apparatus Company recommends Federal Sirens and Beacon Ray lights to their customers, because they can rely on the integrity of the products and the experience of the company producing them.

In selecting your new fire truck great care should be given to its specifications, down to the last detail. There will be many items requiring your considered scrutiny. Don't overlook *adequate protection* for that expensive equipment and for the men who ride it. You can improve your response time and get there in safety with Federal Warning Signals.

Do more than just ask for FEDERAL, the best in warning signals, select the model of siren, light, or combination of them that will best fit the requirements of your department.

We will be glad to send you complete literature on *all* available Federal Signals for fire apparatus.

**FEDERAL SIGN and SIGNAL Corporation**

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# FIRE ENGINEERING

*A Consolidation of* FIRE AND WATER ENGINEERING, THE FIRE ENGINEER, FIRE PROTECTION *and* FIRE SERVICE

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24 West 40th Street, New York 18, N. Y.

# FABRILON

## WITH DOUBLE-SURFACE JACKETS

**DOUBLE-SURFACE MEANS DOUBLE-SERVICE**

This is a magnified cross-section cut length wise through a FABRILON hose jacket. The cabled warp strands are shown closely interwoven with FABRILON filler cords in FABRIC's exclusive *twill woven* construction.

For every stitch that is inside there are *two* on the outside, which means that *twice* as much material is on the *outside* of the jacket, producing a smooth, *double-wearing* surface attained only in our *twill woven* FABRIC jackets.

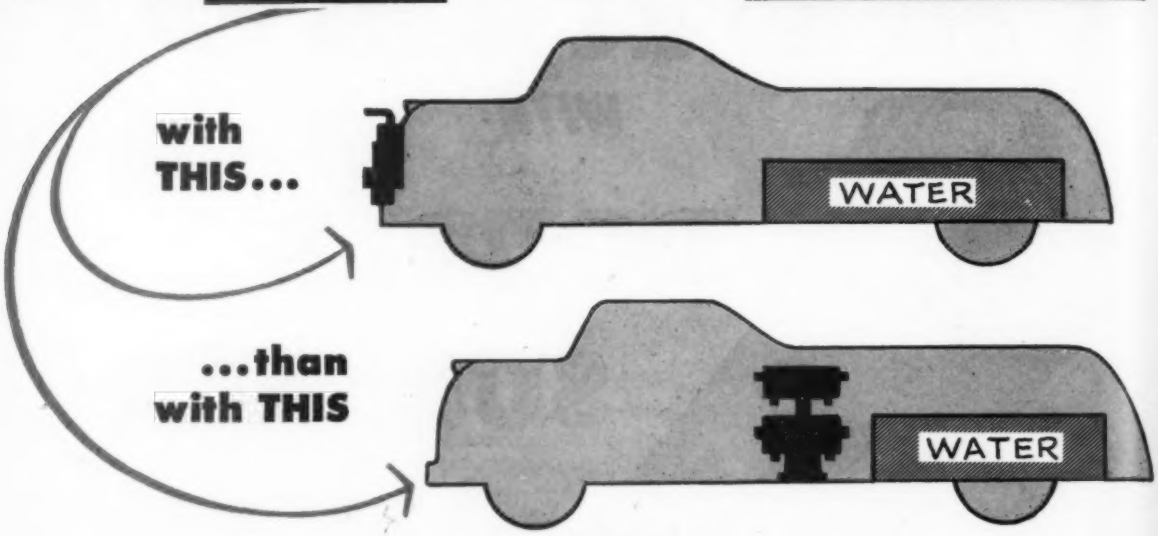
## FABRIC FIRE HOSE COMPANY

**THE ONLY EXCLUSIVE MANUFACTURER OF FIRE HOSE IN AMERICA**

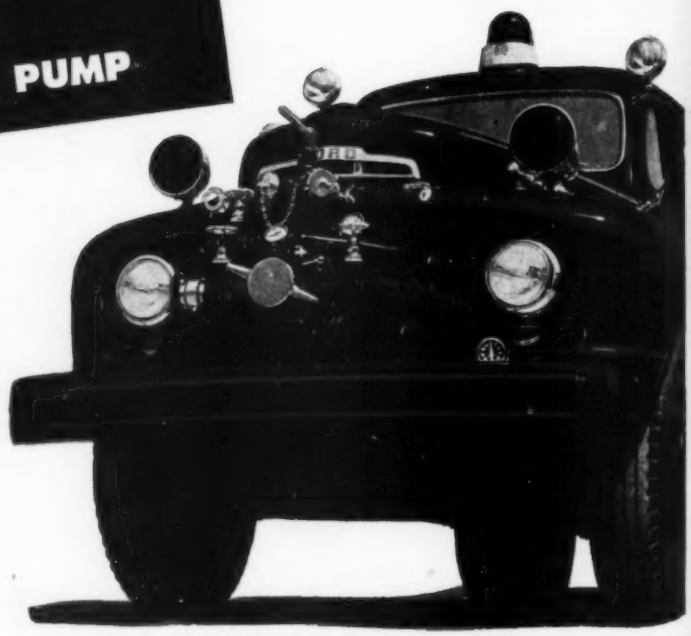
**SANDY HOOK CONNECTICUT**

**IN CANADA BICKLE-SEAGRAVE, LTD. WOODSTOCK, ONTARIO**

# BETTER BALANCE — BETTER PERFORMANCE




## BARTON-AMERICAN
## Type UA
## FRONT-MOUNTED PUMP



The UA Front-Mounted Pump eliminates the need for carrying two pumps to provide fire streams while the truck is standing and while it is moving. This enormous saving in weight, combined with the front location of the UA, results in better load distribution, easier truck control on the road.

Because the UA Pump is located ahead of the truck engine, there is considerably more body space for compartments, equipment and water. The UA Pump is simpler to install than midship types, is more readily accessible and controls are more conveniently located. In addition, first cost is less and there is much less maintenance.

Not only does the UA Pump meet full Underwriters' requirements, it also delivers high pressures for fog gun service.

For full details on *all* the advantages of the Barton-American UA Front-Mounted Pump, write for your copy of Bulletin 8330-B.

**AMERICAN-MARSH PUMPS**

**BATTLE CREEK MICHIGAN**

**CANADIAN PLANT:**
**American-Marsh Pumps (Canada) Ltd. • Stratford, Ontario**

RESEARCH KEEPS **B.F.Goodrich** FIRST IN RUBBER

# If you're still using heavy, bulky fire hose—here's news for you

Now there's a hose that's lighter, stronger, easier to handle than ordinary hose—yet it costs no more. It's the newest B. F. Goodrich hose, called Highflex, and has all the features you'd expect to find only in premium hose.

The improvement in flexibility is easy to see. Highflex held by the man at left is actually as flexible as the sleeve of his fire coat. It's 23% lighter than ordinary hose, so it gets into action faster, handles easier during fires, can be hauled up ladders without strain.

After the fire is out, Highflex packs easily, quickly into a tight, 2-foot coil. And back at the station, it cuts minutes from loading time because it racks naturally on the truck bed, doesn't twist or kink. Highflex saves important space, too, according to Chief A. W. McNeil (at right, above), of the Cleveland, Mississippi Volunteer Fire Dept. He says, "We've increased our hose load from 1200 feet to 1600 feet and there's still plenty of room on the truck bed for more."

It's a chemically-produced fiber that makes Highflex so light and flexible. B. F. Goodrich uses this fiber as "filler" cords—the cords that go around the hose and carry the load under pressure. Compared with cotton, used as filler cords in other hose, the B. F. Goodrich cord has *3 times* the strength for the same weight of cord.

With B. F. Goodrich Highflex you get all the advantages of the most expensive, premium hose, yet it costs no more than regular hose. Have a BFG Fire Hose Distributor show you a sample of Highflex. Compare it with your present hose—for weight, flexibility, and strength. Prove to yourself that Highflex is your best hose buy. *The B. F. Goodrich Company, Dept. M-322, Akron 18, Ohio.*

**B.F.Goodrich**
**INDUSTRIAL PRODUCTS DIVISION**

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# 81st I. A. F. C.

INVADER 750 G.P.M. PUMPER, OPEN CAB

## There you will see the AMERICAN-LAFRANCE *Extra Value* Pumper for superior performance,

AMERICAN-LAFRANCE pumpers give you 14 Extra Values . . . exclusive "built-in" features . . . for outstanding dependability. Visit our Space #1 and see for yourself how these Extra Values make American LaFrance the World's Finest Fire Engine.

Pumpers are available in all standard rated capacities, Class A and B, triple combination or as quadruple combination with a full complement of ground ladders.

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- PUMPER . . . SPACE No. 1
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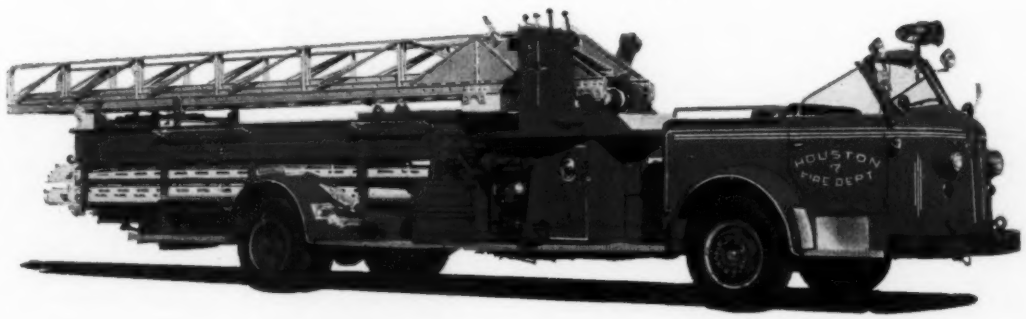
# *our exhibit at the* Conference....




4 WHEEL 85 FT. AERIAL

## and the AMERICAN-LAFRANCE All-Steel Aerial for greater safety and longer operating life.

Sixteen Extra Values in American LaFrance all-steel aerial ladder trucks give you maximum performance and safety under all operating conditions. You can see these outstanding features when you visit our Space #2.

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### M.S.A. CHEMOX®

Complete breathing protection in any atmosphere for a minimum of 45 minutes. Chemox makes its own pure oxygen from a replaceable chemical canister. Apparatus can be donned in seconds. Non-fogging lenses, no high pressure cylinder lines, or fittings. U.S. Bureau of Mines Approved. Write for details.

### M.S.A. "ALL-SERVICE" MASK®

For fire-fighting efforts in air co taminated with smoke and gas, bu where sufficient oxygen is present t support life, the "All-Service" Mas assures dependable breathing protec tion to the wearer. Available wit the M.S.A. "Cleartone" Speakin Diaphragm for clear speech trans mittal. Write for details.

### M.S.A. PNEOLATOR

Assures maximum chances of recovery in all cases of arrested breathing. Provides oxygen at the preselected amount and pressure. There is no suction cycle—exhalation takes place by the normal passive return of respiratory muscles. Portable, rugged carrying case. Write for complete details.

### M.S.A. STREAMLINED FIREMAN'S HELMET

Meets all requirements for fire-fighting hats—molded laminated plasti takes bumps and blows, withstand water, oil, heat, provides high dielec tric strength. Streamlined design add eye-appeal; shields are of tough, ful grained leather; winter lining zips quickly. Write for details.

### M.S.A. FOILLE SPRAY KIT

This kit is supplied with an efficient spray gun for quick application to burned areas, promptly easing pain and aiding in the control of shock. An ample supply of Foille in jars which connect to the spray gun and a complete assortment of first aid dressings and accessories are assembled in a weather-proof steel case. Write for details.

### M.S.A. FIRST AID KIT

Designed to meet all the requirement of fire department service, conten of the M.S.A. Kit are protecte against dust, dirt, and moistur Features a complete supply of eme gency treatment for immediate appl cation. Unit packages permit quic location, and economical replace ment. Write for details.

### M.S.A. EXPLOSIMETER®

A compact, portable, easy-to-use instrument for checking suspected areas for explosive gases and vapors during fires and in general survey work. Body carrying straps, and one hand operation permit unhampered use. Easily read dial, rugged, simple to maintain. Write for details.

### M.S.A. FLOOD LAMP

Safe in gaseous atmospheres, th lamp combines brilliant, unfailin illumination with easy portability Equipped with standard Edison Ba teries in magnetically-locked ste container. Lamp housing is wat and dustproof. Write for details.

*Call the M.S.A. man*

*on your safety problem*

**. . . his job is to help you**

MSA

SAFETY EQUIPMENT HEADQUARTERS

# with proved M·S·A equipment

# THE NEW M·S·A AIR-MASK

*. . . available with AIR or OXYGEN*

Improved design, and the selective use of materials to fully meet service conditions put the new M.S.A. Air-Mask in a class by itself.

This unit, designed to bring maximum protection and comfort to users in unbreathable atmospheres, supplies air or oxygen in exact accordance with breathing needs. During exhalation, the flow ceases—an economy measure that greatly lengthens service life.

Here are a few of the construction details—

...a small attractive demand regulator.

...large, easy-operating, all metal handwheels—longer wear.

...large, well-defined figures on pressure gauge for easy reading.

...the high pressure hose is made of wire-inserted neoprene for increased wear.

...the redesigned cylinder valve connects directly to the cylinder and the improved working parts of the valve provide greater serviceability and less maintenance.

...the compact cylinder frame fits close to the body.

...the nylon harness is easily adjusted and provides maximum strength. It is highly chemical and water-resistant.

...the new color scheme is an attractive dark green and yellow. This striking appearance makes it easier to spot men in working areas.

Write today for complete details on this new M.S.A. Air-Mask . . . you'll be taking a step forward in bringing greater efficiency, safety to your fire-fighting operations.

**MINE SAFETY APPLIANCES COMPANY**
201 North Braddock Avenue, Pittsburgh 8, Pa.
At Your Service: 76 Branch Offices in the United States

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40
YEARS
1914 ★ 1954

# 750 GALLON

CHAMPION

200 HORSEPOWER GMC

## 750 GALLON UNDERWRITER PERFORMANCE PLUS HIGH PRESSURE FOG

The beautiful Champion Fire Apparatus, illustrated above, is an unbeatable value in a 750 gallon Class A pumper which conforms to all specifications of the National Board of Fire Underwriters and all State Insurance Bureaus. Delivers 750 gallons per minute at 150 lbs. pressure, 525 GPM at 200 lbs., 375 GPM at 250 lbs. to meet all requirements for Class A Underwriter rating, the highest rating given to any pumper, no matter whether you pay 25% to 50% more than our low price.

Pump — The Darley Champion Fire Pump, manufactured exclusively by W. S. Darley & Co., is the Type SH750, 3 stage centrifugal, which delivers, in addition to Underwriter performance, pressures up to 1000 lbs. for high pressure fog fire fighting. You get everything you'll ever need in fire fighting efficiency when you get a Champion Pumper. And if it's big volume you want this SH750 will actually deliver 900 gallons per minute pumping water from a river or lake and 1350 GPM pumping from a hydrant which has average to good flowing pressure.

You can select any commercial chassis with engine capable of delivering 160 horsepower or more.

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## W. S. DARLEY & CO.

**2810 WASHINGTON BOULEVARD** *Established* **1908** **CHICAGO 12**

**Factories — Chicago and Chippewa Falls, Wis.**

Headquarters for Fire Department

# BRASS GOODS

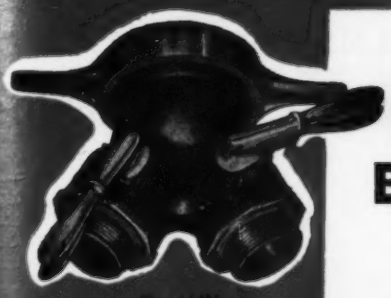


Fig. 164N
4½" swivel female x two 2½" male Gated Siamese. Quick opening.

Fig. 163
Made either Right Hand or Left Hand 2½" male x female, gate valve.

## McINTIRE BRASS WORKS

*Pioneers in Nozzle Manufacture*

**ORIGINATORS**

*and Sole Mfrs. of*

## INVINCIBLE NOZZLES

*We invite figuring or bidding on all types of brass work*

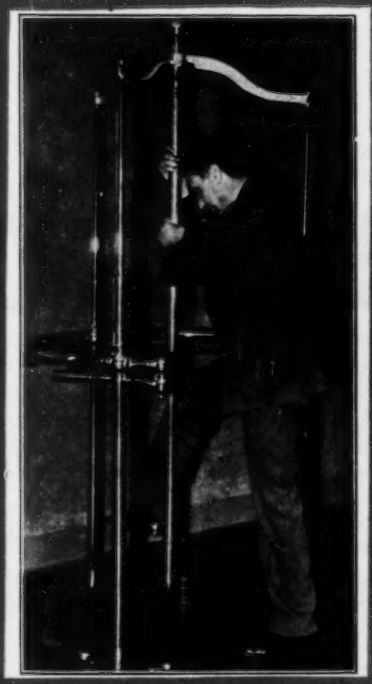
Fig. 186
"MORSE" SHUT-OFF NOZZLE AND PLAYPIPE COMBINATION

FIREBOAT TOWER NOZZLE

Operated by Remote Control

with full Transverse Control

Figure 114-B — one of many — made by pioneers in nozzle manufacture.



AUTOMATIC-OPERATING SHUTTER AND SLIDING POLE

15 feet high 6500 G. P. M. 5" tip.

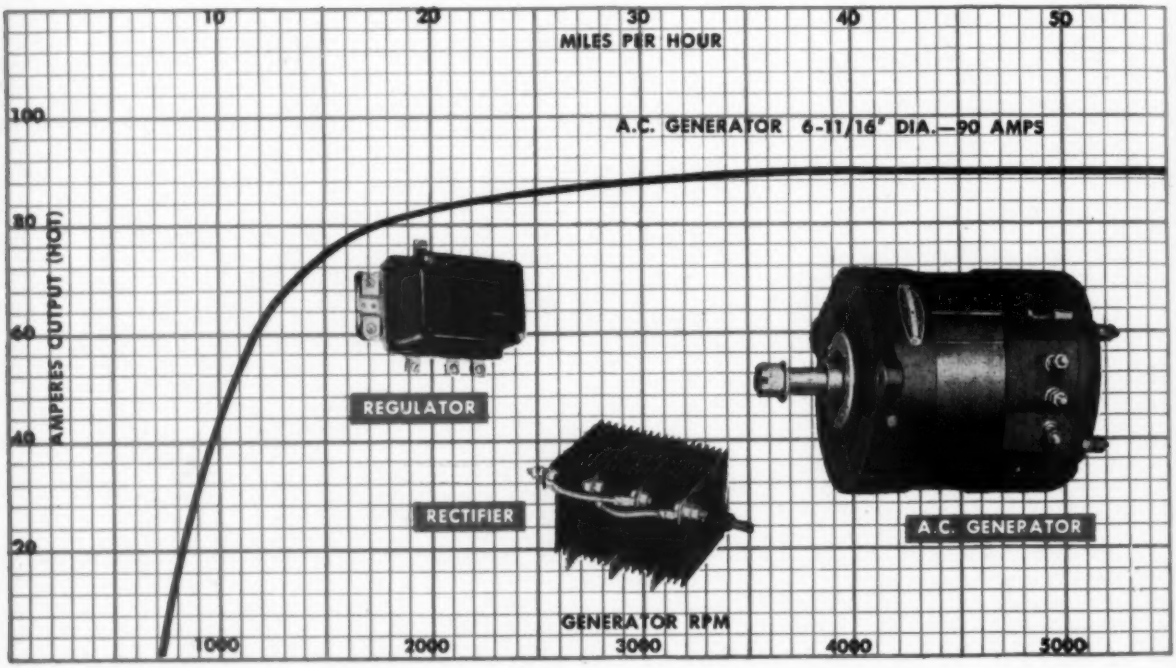
For the FINEST BRASS GOODS

*Specify* McINTIRE

**F. N. McINTIRE BRASS WORKS** 377 Putnam Avenue Cambridge 39, Mass.

# Power Packed and

## HERE'S THE A.C. ANSWER TO EXTRA-HEAVY ELECTRICAL DEMANDS




# DELCO-REMY

## A. C. Generator, Regulator and Rectifier

Here's the answer for "problem" vehicles—Delco-Remy's new long-lived A.C.-D.C. charging system! It's specifically designed to meet the *extra*-heavy electrical demands of fire engines, police prowl cars, big city taxis—other vehicles equipped with two-way radio, floodlights or any extra electrical units. Ample current reserve picks up discharged battery quickly in operation. Delco-Remy A.C. generators are suitable for use at all engine speeds.

With output ranging from 30-40 amperes at curb idle and up to 90 amperes at higher engine speeds, the new Delco-Remy A.C.-D.C. charging system meets all electrical needs under the toughest operating conditions. Included in the new system is the A.C. generator, a matching regulator, and a rugged, dependable dry-plate rectifier which converts generator A.C. output to direct current.

Application packages complete with installation instruction sheets for popular makes of cars and trucks are now available. The conversion job is simple. For further details and application data, see your nearest United Motors distributor.

A GENERAL MOTORS PRODUCT — A UNITED MOTORS LINE

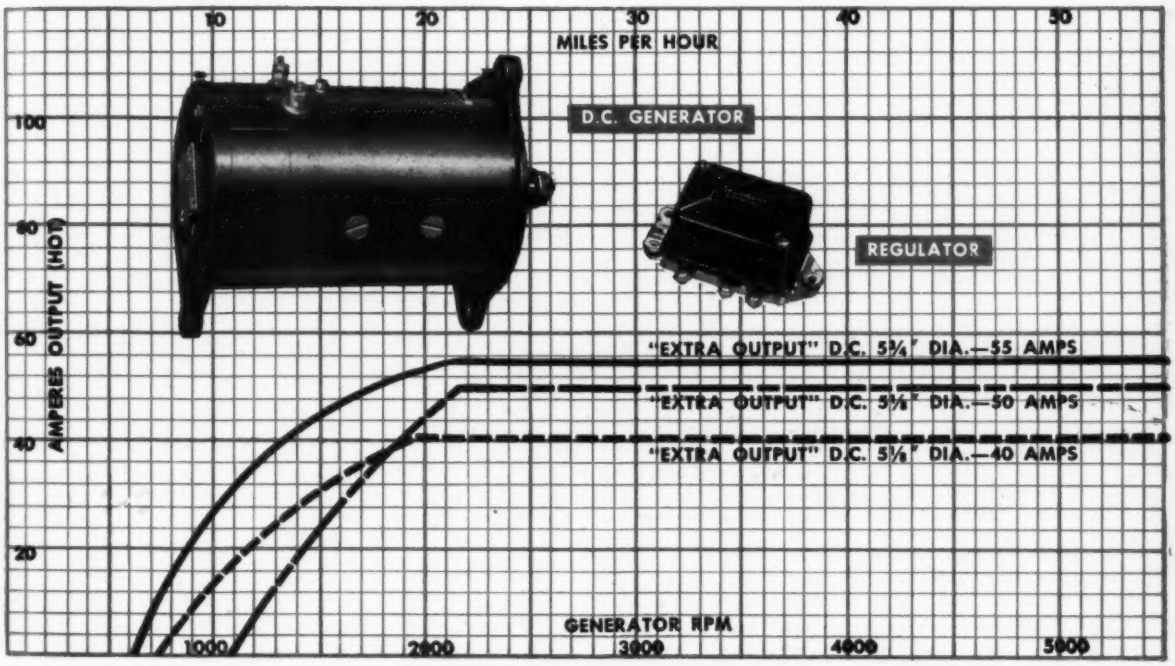
DISTRIBUTED BY WHOLESALERS EVERYWHERE

*WE'LL BE SEEING YOU!*
*Booths 21-22*
*Coliseum*
*Houston, Oct. 17-21*

WHEREVER WHEELS TURN OR PROPELLERS SPIN

# Right for the Job

## HERE'S THE D.C. ANSWER TO HEAVY ELECTRICAL DEMANDS




# DELCO-REMY

## Extra-Output D. C. Generators and Matching Regulators

Delco-Remy extra-output D.C. generators are an economical answer to the electrical needs of fire engines, suburban police cars, rural mail cars . . . other vehicles with additional lights, two-way radios, or other special electrical equipment in medium to heavy-duty service. Delco-Remy extra-output D.C. generators are low in cost, simple to install, economical to maintain.

DELCO-REMY 40-AMP GENERATOR has low cut-in, about 7 mph, charges from 11 to 17 amperes at curb idle . . . full output about 18 mph —for vehicles customarily used in heavy traffic.

DELCO-REMY 50-AMP GENERATOR has slightly higher cut-in, about 11 mph . . . full output about 21 mph—for vehicles customarily operated at higher speeds, with minimum slow driving.

DELCO-REMY 55-AMP GENERATOR has very low cut-in, about 6 mph; charges at curb idle from 20 to 30 amperes . . . attains full output at 20 to 25 mph—for vehicles customarily operated at low speeds with added electrical loads, such as city taxicabs and police cars.

For further details and application data, see your nearest United Motors distributor.

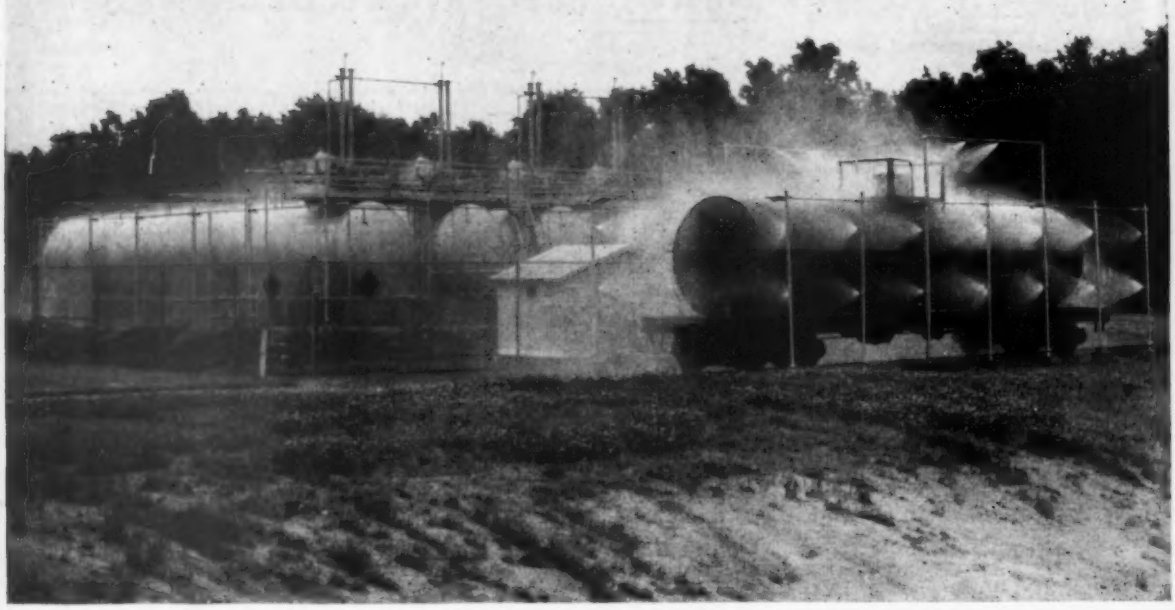
# Delco-Remy

DIVISION, GENERAL MOTORS CORPORATION, ANDERSON, INDIANA

WHEREVER WHEELS TURN OR PROPELLERS SPIN

# A valuable member of your force . . .

# Grinnell ProtectoSpray



If yours is an industrial community, it probably has its share of serious fire hazards like the liquefied petroleum gas tanks shown in the picture. Owners of such tanks may well come to you for advice and special cooperation in protecting their property—and also their neighbors'. A Grinnell ProtectoSpray System could logically be part of your answer.

Storage or bulk handling of LPG presents a special danger that is only too well known to fire departments. Any leak brings the chance of fire, that could easily turn into a holocaust. To avert possible disaster, several things become immediately necessary:

**1.** The leak must be located and the leakage stopped. Grinnell ProtectoSpray provides a margin of safety for the personnel doing this work.

**2.** Heat transfer to the storage tanks must be prevented to avoid build-up of rupturing pressure within the tanks. Properly engineered fixed water spray protection provides effective cooling of tanks to prevent pressure build-up.

**3.** Positive air turbulence should be provided to hasten dilution of escaped gas to make the mixture too lean to burn. Water spray, without dependence upon wind to assist it, provides sustained air movement which hastens the dilution of escaped LPG.

**4.** Additional inert vapor should be provided to speed the dilution of escaped LPG. Water spray is an abundant source of such inert vapor, the finer droplets vaporizing to produce inert water vapor.

**5.** If escaped gases ignite, the wide and evenly distributed pattern of fine water droplets from Grinnell ProtectoSpray nozzles permits safe, controlled burning of gases.

Get the complete story. Write for a copy of "Water Spray Keeps LPG Storage A Safe Neighbor".

Grinnell Company, Inc., 287 West Exchange Street, Providence, R. I.

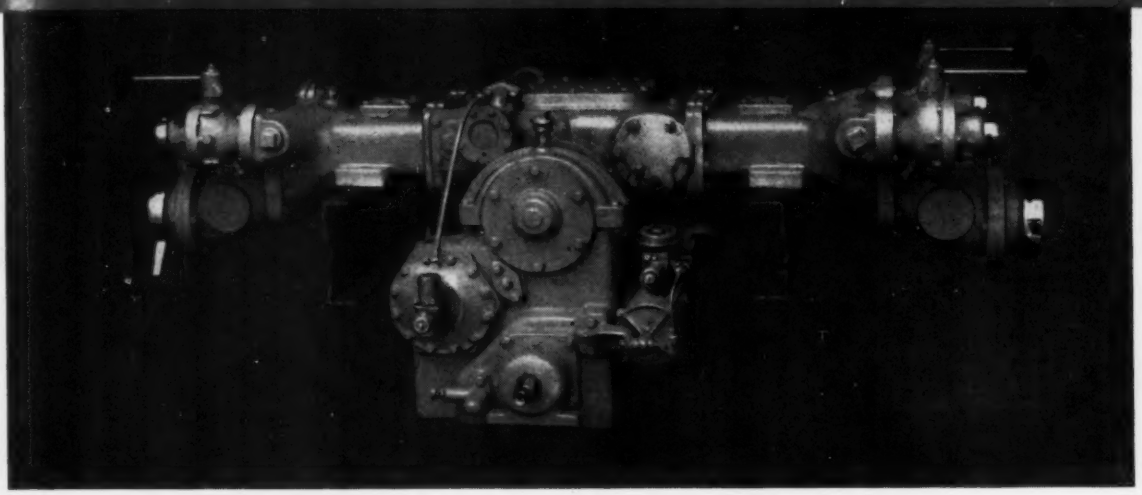
**GRINNELL**

**PROTECTION AGAINST EVERY FIRE HAZARD**

*Manufacturing, Engineering and Installation of Automatic Sprinklers Since 1878*

# Announcing the *NEW*

# HALE QL and QL-75 Series of 2-stage Centrifugal Pumps



| UNDERWRITERS' RATING: | B Ratings | A Ratings |
|---|---|---|
| • QL and QLHD | 500 GPM at 120 lbs. | 500 GPM at 150 lbs. |
| • QL and QLHD | 600 GPM at 120 lbs. | 600 GPM at 150 lbs. |
| • QL75 and QL75HD | 750 GPM at 120 lbs. | 750 GPM at 150 lbs. |

**LOW OVER-ALL HEIGHT**—The low over-all height of the pump above the frame provides substantially more room for tank, compartments, or hose space.

**VOLUME-PRESSURE PUSH-BUTTON CONTROL**—Push-Button on panel enables operator to change over from pressure to volume or vice versa, carrying instrument panel operation one step further for simplicity of control.

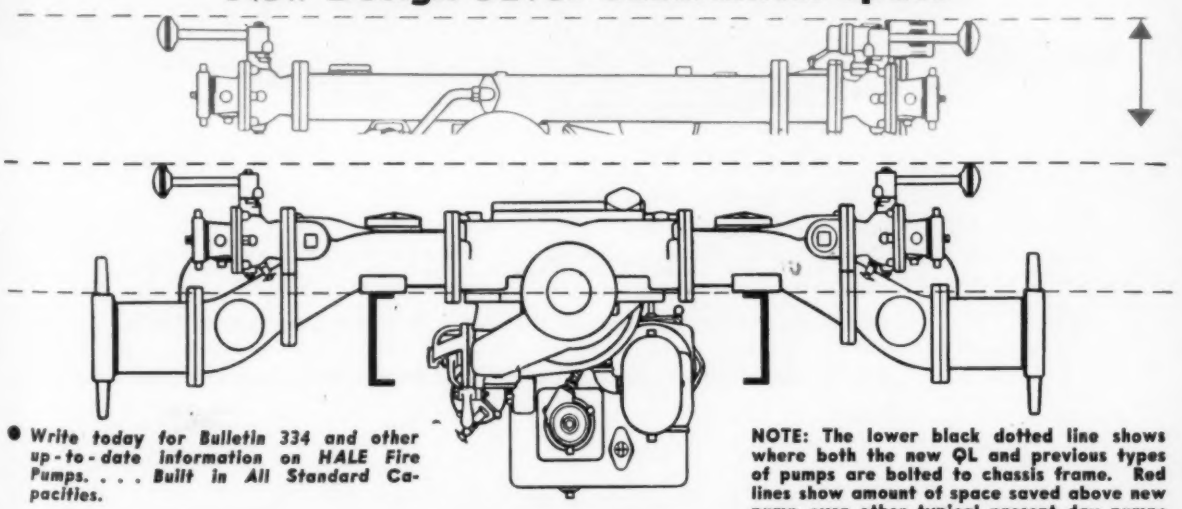
**PANEL MOUNTED RELIEF VALVE CONTROL**—A convenient wheel on panel makes it easy to set relief valve quickly and accurately. (Relief Valve is built into pump —another new feature.)

**DEEP DROP TO FIT MODERN CHASSIS**—The QL and QL75 Series is designed with a Deep Drop between mounting pads and center line of drive shaft to fit up-to-date truck chassis.

**EASIER TO SERVICE**—The new design makes it convenient to service pump from the bottom for inspection—or minor repairs. Lower half of pump, or whole pump can be dropped down between frame without marring enclosure panels or disturbing gauges or instruments.

**PUSH-BUTTON PRIMING**—This feature, so popular on previous models, has also been incorporated in the QL and QL75 series.

## New Design Saves Substantial Space



• *Write today for Bulletin 334 and other up-to-date information on HALE Fire Pumps. . . . Built in All Standard Capacities.*

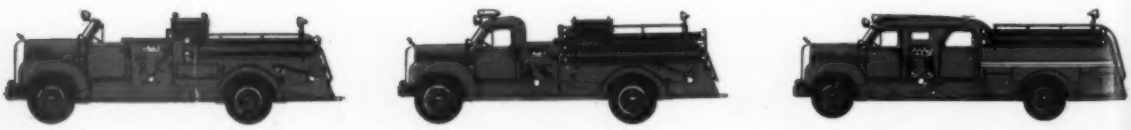
**NOTE: The lower black dotted line shows where both the new QL and previous types of pumps are bolted to chassis frame. Red lines show amount of space saved above new pump over other typical present day pumps in the same range as the QL.**

# HALE FIRE PUMP COMPANY

## CONSHOHOCKEN, PA.

# Presenting the all-new

**Powered by renowned Mack Thermodyne® Engines, the new line-up of Mack apparatus includes pumpers from 500 to 1250 g.p.m., squad and hose cars, aerials and combination ladder trucks.**



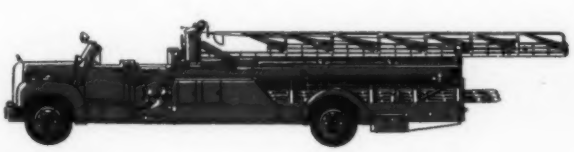
# line of *Mack* fire apparatus

**All New** from stem to stern, the new "B" line of Mack Fire Apparatus marks a great stride forward in modern styling, design and construction.

Choice of cabs includes 3-Man Coupe, 3-Man Semi, 5-Man Sedan, 5-Man Canopy or Deluxe 7-Man Sedan and Canopy. Adjustable driver's seat can be moved backward or forward; up and down.

Simplicity of control is enhanced by new-design pumps that feature push-button priming and push-button pressure-volume control whereby the operator can change over from pressure to volume or vice versa by pressing a button on the instrument panel. Low overall-height of pump above frame provides substantially more room for tank, compartments or hose space.

Have a Mack representative show you what Mack's new and advanced design can mean to your department in apparatus that is truly modern—apparatus that is years ahead in styling and performance. Mack Manufacturing Corporation, Fire Apparatus Division, New York 1, N. Y.



Mack
FIRE APPARATUS

2674

# Symbol of Quality-Service-Protection . . . for the modern fire fighter

The famous Midwestern Manufacturing Company trademark is your guide to the finest protective clothing that money can buy—garments that are specifically designed to help safeguard your men's life on every run—enable them to use their equipment to the fullest advantage. Superior quality, design, fabric texture and many exclusive features have made Midwestern Protective Clothing highly favored wherever men fight fires.

- **Exclusive Safety Features**
- **Tailored for Comfort**
- **Softer, More Pliable Materials**
- **Made of Natural Rubber**

We manufacture both rubber and fabric fire coats. In our vast selection of materials you will find the type of fabric exactly suited to your climate and needs. You can depend on the softness and flexibility of the high grade materials used to meet your most exacting requirements for lasting comfort and service under the most rugged conditions.

For complete information on our full line of firemen's protective clothing, see your Midwestern dealer. A letter to the factory will also bring you literature and material samples for your inspection.

MIDWESTERN MFG. CO., Mackinaw, Illinois

*Manufacturers of the Famous* **MACKINAW Coats**

# Get Set to Spring into Action with INDIAN FIRE PUMPS

If you've been under the impression that INDIAN FIRE PUMPS were intended for use only on brush and grass fires you're in for a big surprise. Just read this letter from a user who once thought the same thing:

*"I once thought INDIAN FIRE PUMPS had use only where a volunteer department was putting out grass fires. Since including a No. 90 galvanized INDIAN on our apparatus, however, I found that the men would not use any other type of extinguisher.*

*That led me to buy a number of No. 90 solid brass tank INDIAN FIRE PUMPS and place them on all our equipment. We are most enthusiastic about INDIANS and prefer them to any other hand extinguisher for all class A and small oil fires."*

*George P. Lasher, Fire Chief*

We urge you to make the same test. Put in several INDIAN FIRE PUMPS now and try them out. Convince yourself of their many, many applications. And remember—no chemicals—only clear water.

"Choice for Quality The World Over"

All seams are electric welded. No leakage.

## D. B. SMITH & CO. 406 MAIN ST. UTICA 2, N.Y.

**PACIFIC COAST BRANCHES:**

[illegible] Equipment & [illegible] Company, Inc. [illegible] Bearnes Street [illegible] Francisco 7, Calif.

Fred E. Barnett Co. 3000 S. E. 9th Avenue Portland, Ore.

Mill & Mine Supply, Inc. 625 Lander Street Seattle 4, Wash.

[illegible] Supply Co. [illegible] W. Flower St. [illegible] Angeles 15, Calif.

Fred E. Barnett Co. 526 Spring Street Klamath Falls, Ore.

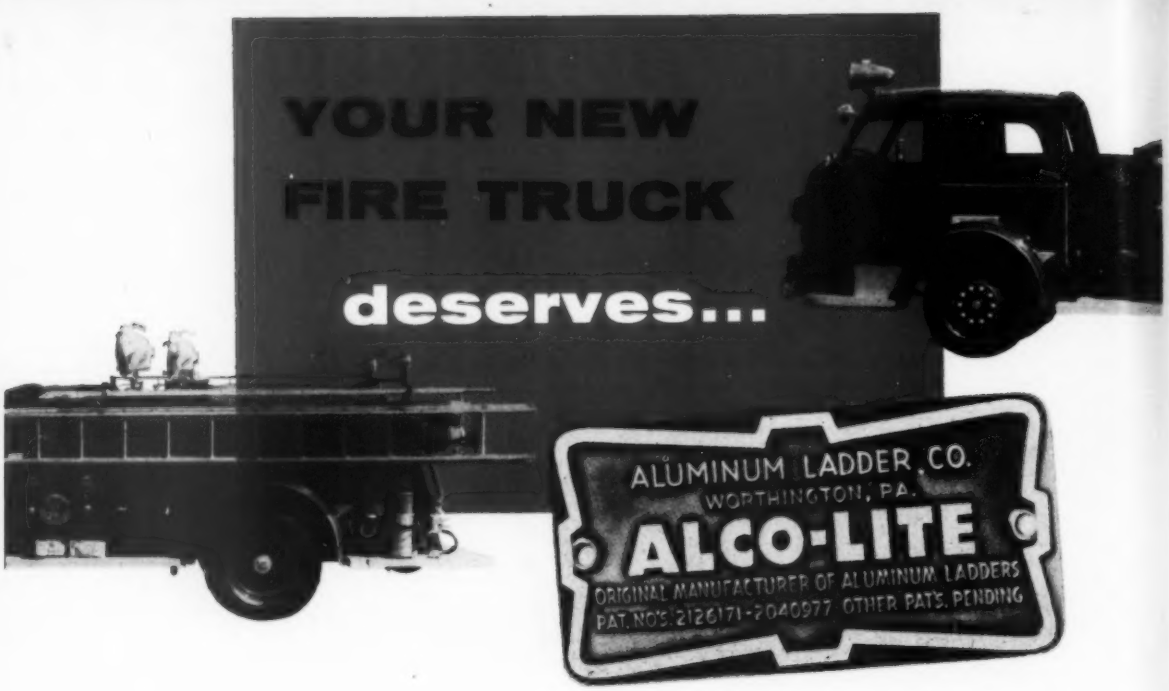
L. M. Curtis & Sons 43 West 3rd St., South Salt Lake City, Utah

**CANADIAN AGENTS:**

Fleck Bros. Limited 110 Alexander Street Vancouver, B. C., Canada

C. E. Hickey & Sons, Ltd. Hamilton, Canada

# YOUR NEW FIRE TRUCK deserves...



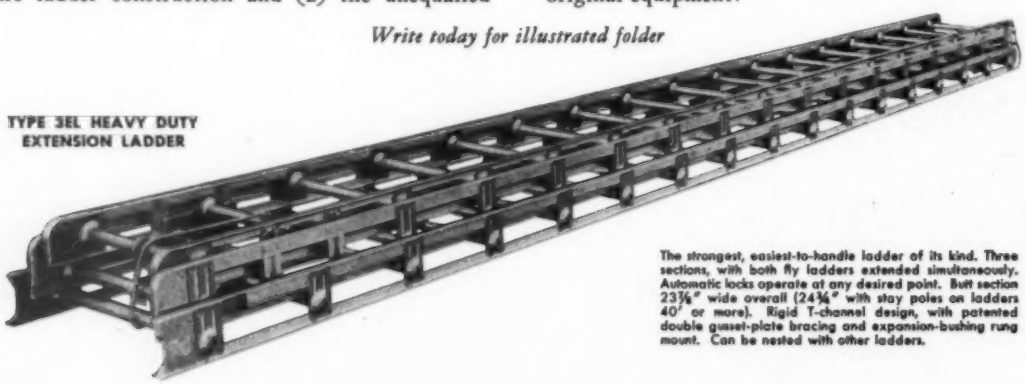

Your purchase of a new truck in the near future will give your department the latest, most efficient motor equipment in the world. *Be sure that your new truck has all the EXTRA advantages of safety and durability provided only by genuine* ALCO-LITE *Aluminum Ladders.*

During the past quarter of a century, the outstanding performance of ALCO-LITE ladders has proved (1) the superiority of alloy aluminum in fire ladder construction and (2) the unequalled strength of ALCO-LITE's *exclusive* gusset-and-bushing type rung mounting. ALCO-LITE ladders are the handiest, most easily erected fire ladders in the world . . . and they require almost no maintenance throughout years of heavy service.

You can order ALCO-LITE ladders, built to your exact requirements, from any truck manufacturer. Be sure to give your next truck the fine ladders it deserves . . . specify ALCO-LITE as original equipment!

*Write today for illustrated folder*

**TYPE 3EL HEAVY DUTY EXTENSION LADDER**



The strongest, easiest-to-handle ladder of its kind. Three sections, with both fly ladders extended simultaneously. Automatic locks operate at any desired point. Butt section 23⅜" wide overall (24⅜" with stay poles on ladders 40' or more). Rigid T-channel design, with patented double gusset-plate bracing and expansion-bushing rung mount. Can be nested with other ladders.

## Aluminum Ladder Company

200 CARBIS STREET WORTHINGTON, PA.

The Original Manufacturer of Aluminum Fire Ladders

MEMBER: METAL LADDERS ASS'N

SINGLE WALL LADDERS • HEAVY DUTY 2, 3 & 4-SECTION EXTENSION LADDERS • LIGHT-DUTY EXTENSION LADDERS • ROOF LADDERS • FOLDING LADDERS • PIKE POLES

In Canada: C. E. HICKEY & SONS, LTD., Hamilton, Ontario

# Fire Out-in ½ Second!

In recent open air tests under adverse conditions, CBM completely extinguished highly flammable lacquer fire in a record one-half second. Only one automatic ceiling type extinguisher was used.

## FOR FASTER EXTINGUISHING ACTION—

## SPECIFY TRONA CBM

(CHLOROBROMOMETHANE)

**CBM is the newest and most efficient fire fighting agent yet discovered. Used extensively by the U. S. Air Force because of its faster extinguishing action and extremely low freezing point, CBM has been proven considerably more effective than carbon-tetrachloride. Tests show that less CBM is decomposed into non-effective gases. More remains as a useful fire extinguishing agent. Because of negligible corrosive action and lower freezing point, CBM extinguishing units are light and compact. They discharge rapidly and completely at temperatures as low as —65° F, while the liquid nature of CBM makes recharging fast and easy. Its low toxicity and high density qualities make it far less hazardous than old-fashioned agents—the fire is out faster... the operator is exposed for a shorter period.**

### PROPERTIES

| | |
|---|---|
| Characteristics | Clear, colorless liquid with a sweet oder |
| Boiling range at 760 mm. Hg 5-95% | 66-68 deg. C |
| Freezing Point | below —65 deg. C. |
| Specific Gravity at 25/25 deg. C. | 1.910/1.940 |
| Pounds per gallon at 25 deg. C. | 15.98 |
| Flash Point | None |
| Fire Point | None |
| Molecular Weight | 129.4 |
| Solubility per 100 grams water at 25 deg. C. | 2.4 grams |
| Solubility in common organic solvents | Infinite |
| Cloud Point (moisture) | below 3 deg. C. |

*Meets U. S. Air Force Specifications No. MIL-B-4394-A*

*Send for free booklet containing complete information on CBM*

TRONA
INDUSTRIAL AND AGRICULTURAL CHEMICALS

A product of **ESTON CHEMICALS DIVISION**

American Potash & Chemical Corporation

3100 East 26th Street, Los Angeles 23, California

**AMERICAN POTASH & CHEMICAL CORPORATION**
**ESTON CHEMICALS DIVISION**
3100 E. 26th St., Los Angeles 23, California

Please send me informational bulletin on CBM describing its superior extinguishing properties.

NAME_____

TITLE_____

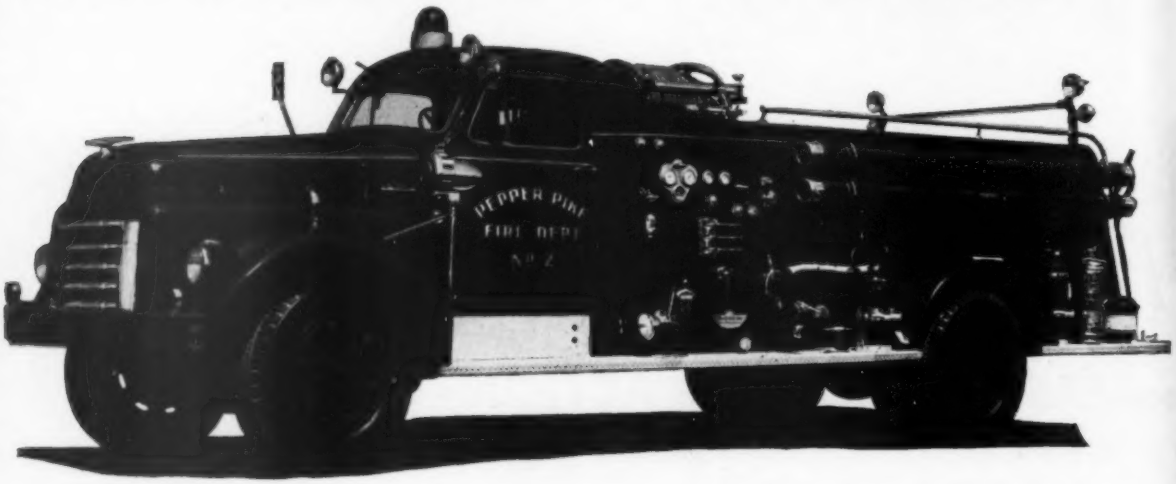
ADDRESS_____

COMPANY_____

# *American* FIRE ENGINES OFFER YOU

# MORE BIG FEATURES

## THAN ANY OTHER STANDARD 750 GALLON PUMPER




**JUST LOOK** at this superbly engineered, top quality pumper delivered to the Pepper Pike Fire Department. *No other apparatus builder* offers a *standard* 750 G.P.M. triple combination pumping unit with so much standard equipment . . . so much advanced engineering . . . so many useful refinements.

**COMPARE** these proud features with any other make . . . and you'll want American Fire Apparatus too!

### All These Features Are Standard Equipment!

**PUMP** — Barton-Duplex Multi-stage Centrifugal . . . the *only* two-stage pump with independent pumping units. (Also available in three and four stages.) Vacuum gear shift, vacuum clutch operation. All piping oversize . . . cuts friction loss to a minimum.

**CONTROLS** — All controls and gauges are complete in one panel on left side. Three 2½" discharge outlets with easy-operating ball-type valves in side of body . . . locking type handles.

**HOSE** — Two fire-killing Barton Super-Fog Guns, carried in chrome-plated brackets. Two booster reels with chrome-plated rollers and spools . . . 300 feet of 1" booster hose standard equipment . . . special American electric rewinds. Quick-release suction hose carrier clamps, chrome-plated . . . new improved suction strainer.

**BODY** — Streamlined body joined with cab . . . full length, streamlined brass body rails and rear crossbar, all chrome-plated . . . heavy treadplate running board and rear step . . . streamlined rear fenders . . . slatted, natural-finished native oak hose-bed floor.

**TANK** — Capacity 300 gallons, with 3/16" bottom, 10 gauge sides, with lapped, welded corners . . . frost-proof tank outlet valve . . . tank float level gauge shows amount of water at all times. Patented rear filler doubles as relief valve — always protects tank when being filled with the pump.

**EQUIPMENT** — Full complement of fire department ground ladders on right side . . . plus all extinguishers, tools, brass fittings, etc . . . complying with National Board of Fire Underwriters' requirements.

**. . . PLUS** — Single, undivided responsibility for pump and engine that assures complete satisfaction.

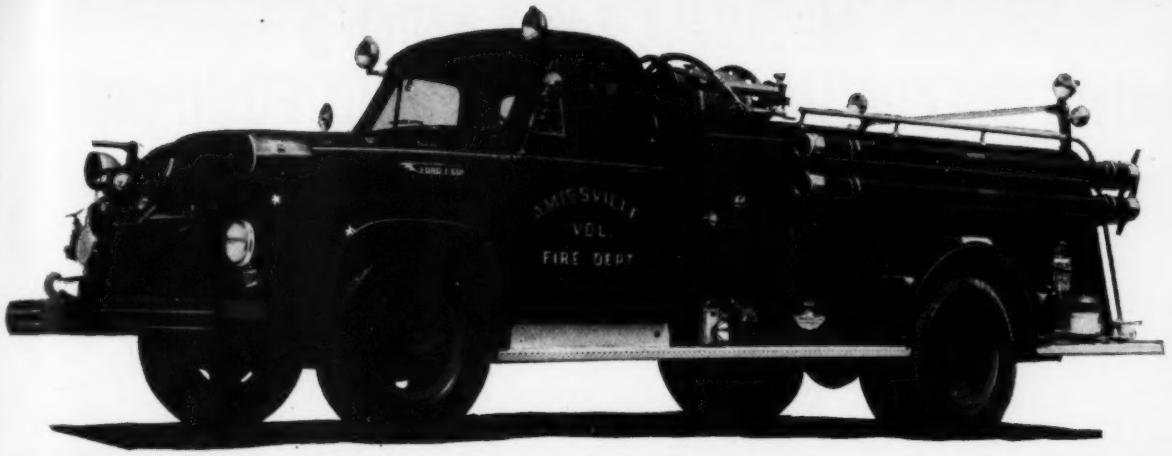
**COMPARE** these big features with any other make . . . then contact your American Fire Apparatus representative!

*American*

**FIRE APPARATUS CO.**

P. O. BOX 1024, MAIN ST. ROAD, BATTLE CREEK, MICH.

*"Always Pioneering with Better Engineering."*




# DESIGN ADVANTAGES

## OF BARTON-AMERICAN FRONT-MOUNTED PUMPERS GIVE YOU EXTRA FIRE-FIGHTING EFFECTIVENESS

**FOR RURAL** and small town fire departments, units like this triple-combination beauty delivered to Amissville, Virginia, offer many basic design advantages. With a single, dependable 500 G.P.M. Barton-American UA-50 Front-mounted Pump, you'll have plenty of pressure and capacity for high-pressure fog or straight streams — and volume too! Without losing a second, you can drive this unit straight up to a farm pond, stream or cistern to draft extra water.

**USING TWO** or more hose lines, you can fight grass fires *on the move* — without the extra weight, cost and trouble of a second pump. Add these *design advantages* to the *superb quality features* listed below — and you'll see why *only* American Fire Apparatus gives so much extra fire-fighting effectiveness!

### Compare These Superbly Engineered Features!

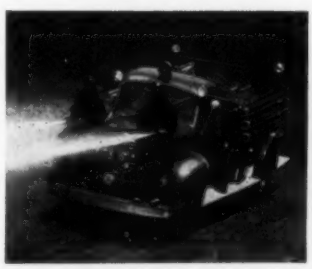
**PUMP** — Barton-American UA-50 Front-mounted Model, with *effective* frost-proof construction and *exclusive* combination friction and positive interlocking clutch mechanism *not* available on any other pump. All piping oversize . . . minimizes friction loss.

**CONTROLS** — Front-mounted construction places pump operating controls at convenient location in full view and in area lighted by headlights.

**HOSE** — Two effective Barton Super-Fog Guns, carried in chrome-plated brackets. Two booster reels with chrome-plated rollers and spools. Quick-release suction hose carriers with chrome-plated clamps. New improved suction hose strainer.

**BODY** — Streamlined body of 12 gauge steel with tubular reinforced top edge and with round front corners . . . streamlined chrome-plated rear crossbar and body rails . . . streamlined rear fenders carefully fitted to rear step and running board . . . slatted, natural-finished native oak hose-bed floor above tank.

**TANK** — Capacity 300 gallons, with 3/16" bottom, 10 gauge sides with top-quality construction lapped, welded corners . . . frost-proof tank outlet valve . . . tank float level gauge registers amount of water in tank at all times. Patented rear filler doubles as relief valve to protect tank when being filled from pump.



Fights running grass fires on *the move* — with one dependable pump.

**EQUIPMENT** — Full complement of fire department ladders on right side . . . plus all extinguishers, tools, brass fittings, etc., in full compliance with National Board of Fire Underwriters' requirements.

**CONTACT** your American Apparatus representative *first*—ask him for complete details!

*American*

GIVES YOU A CHOICE OF FRONT-MOUNTED OR MIDSHIP PUMPS

# MOTOROLA 2-WAY RADIO
# GAINS MAXIMUM USE OF MEN AND EQUIPMENT
## with more complete control and co-ordination AT THE FIRE!

—top quality components plus years ahead design give you communications you can depend upon—*always!*

Uninterrupted communications—24 hours a day—are vital to modern fire fighting. That's why Motorola systems, famed for 'round-the-clock dependability, are first choice of 75% of the radio-equipped fire departments.

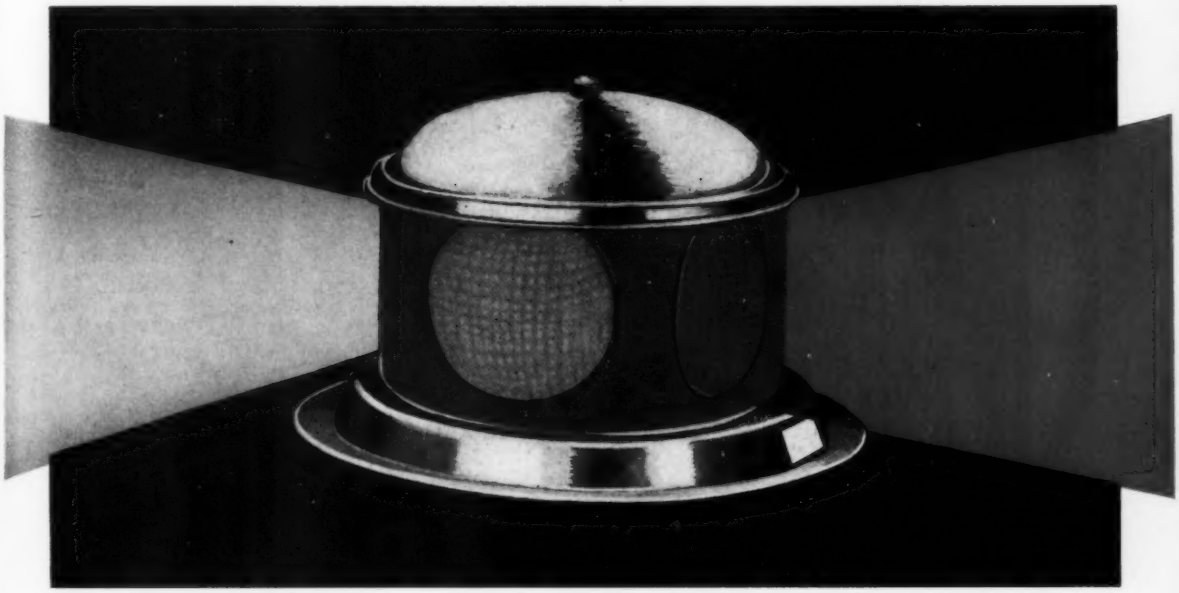
Better parts, years-ahead design, and precision workmanship guarantee the kind of performance firemen have learned to expect from Motorola equipment. Eight exclusive Motorola improvements give you time-tested durability . . . . lowest overall maintenance. The Motorola "Permakay" wave filter eliminates 15 nuisance tuning adjustments *forever!* Let an experienced Motorola engineer in your vicinity give you the complete Motorola 2-way Radio story *soon!*

*national* **Motorola 2-way Radio** *service*

**Motorola Communications & Electronics, Inc.**
A SUBSIDIARY OF MOTOROLA, INC.
4501 W. Augusta, Chicago 51, Ill. • Rogers Majestic Electronics, Ltd., Toronto, Canada

# "CIRCLE BEAM"®

## Nothing Moves But The Beam



DEVELOPED in the laboratories that lead the world in flashing-light research, "CIRCLE BEAM"® gives protection forward, to the sides and rear of the vehicle. It uses high-intensity standard sealed-beam lamps, easily replaced. It has low battery drainage, negligible maintenance, and no moving or complicated parts in the light to get out of order.

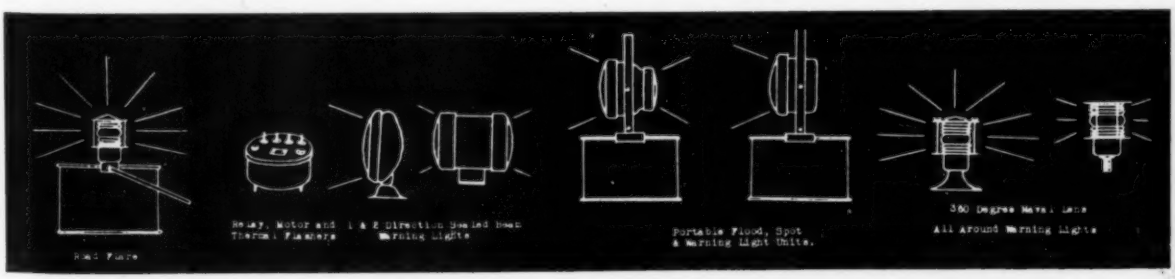
The individual flashes last long enough so that a motorist can estimate the distance to approaching apparatus, **and get out of the way in time.**

Available in types for Flat Roof, Stanchion or Slope Roof mounting. Police, Fire Departments and Snow Plows, generally use higher power lamps forward and aft. Public Works Departments usually require equal intensity all around.

By means of synchronized flashing a double beam of light is emitted which in effect moves around as the adjacent lamps are flashed. There is NO MOTOR TO DRIVE and practically all the energy goes into the lights. Flashing is obtained from the time-tested "TG" high efficiency relay flashers. These lights are effective DAY and NIGHT.

This is one of the products designed to **"Save Lives With Light"**—others include:
High power portable warning lights for emergency control of traffic • Naval lens and single and double direction warning lights • Powerful storage and dry cell operated flood lights • Suction cup mounted vehicle warning lights

**JULIAN A. McDERMOTT CORP.** **40-42 NATIONAL ST., CORONA, N. Y.**



# Revolutionary New RADIO OPERATED SIGNAL BOX SYSTEM

**THAT EVERY COMMUNITY —EVERY FACTORY—EVERY HOSPITAL—EVERYWHERE— CAN AFFORD TO OWN.**

SAFER boxes for factories, warehouses and storage yards.

3-5-8

SAFER boxes for unprotected areas, new developments or to supplement existing wired systems.

2-4-1

FIRE HEADQUARTERS

CHIEF'S CAR

3-3-1

SAFER boxes for hotels, schools and hospitals.

Electronics today control robot planes . . . computing machines . . . guided missiles. The SAFER system now brings these latest electronic developments to the fire field. . . . Here is an alarm system—a guaranteed service—that does not require wiring installation—no continuous high rental—ONE PURCHASE—YOU BUY IT (at very reasonable cost)—and—YOU OWN IT. It is a reliable, rugged, powerful, coded system, positive in operation and with a guaranteed range. Can be installed as a complete system—or—as an economical extension to your existing system.

**DEALERS**
with substantial sales and service facilities will be considered for dealer franchise. Write—

***SIMPLE TIME TESTED OPERATION***

**1.** Conventional manual switch activates powerful transmitter which sends coded alarm to fire house. Each box has its own code for instant location identification. **2.** Receiver in fire house and receiver in fire chief's car can receive and identify location of five hundred different boxes. **3.** Location of activized box is instantly sounded out on bell at fire house and in chief's car. **4.** Location of activized box can also be sounded on sirens, air whistles, etc., to alert volunteers and entire community to location of fire.

## SAFER ELECTRONIC FIRE ALARM, INC.

**CALL BOX DIVISION 838 RIVER ROAD, EDGEWATER, N. J.**

# DRAGON NO. 150 PORTABLE BACK-PACK FIRE PUMP

## An all around Pump for all around use - - - Complete in one Unit

*For*

Forestry Departments
Fire Companies
Industrial Areas
Property Owners
Weed Control
Air Fields
Shipyards
Schools
Farms
Camps

MORE WORK CAN BE DONE WITH LESS EFFORT WITH A DRAGON FIRE PUMP

### MANY DESIRABLE ADVANTAGES

The operator can accurately aim a spray or stream because he leisurely pumps with one hand and holds and operates the nozzle with the other. As long as there is a supply he can play a *continuous* stream exactly where it is wanted. No precious water is wasted!

Whenever desirable the operator may let the pump lever or nozzle "go," permitting free use of his hands to use other tools, rakes, brooms, shovels, etc. Pressure is not lost, he is ready to direct the stream again the moment he releases the nozzle trigger.

By simply revolving the nozzle tip, a large volume fog spray may be obtained, which is most desirable for outdoor as well as indoor fires. Or the nozzle can be instantly adjusted to discharge a coarse spray for a considerable distance. A straight stream will carry for a distance of 35 feet minimum.

Dragon Fire Pumps are compact and complete machines. They can be transported and stored in close quarters for long periods of time. They will always be ready for use, as there are no packings to dry out that may cause critical failures.

Dragon Fire Pumps were designed for the operator —no detail has been omitted or eliminated, no matter how costly, if it would improve the efficiency or operation of a Dragon Fire Pump.

### SPECIFICATIONS

No. 150-S Stainless Steel Tank

No. 150-G Galvanized Tank (Cold Rolled Steel-Hot Dipped Galvanized after Fabrication)

All units equipped w/ brass pumps

Valuable Distributorships available, write for details

## PARCO PRODUCTS COMPANY

PENNSBURG, PA.

# 12 reasons why Scott AIR-PAK is your best breathing equipment buy!

1. Ready for use in less than one minute, just turn on the valve and it's ready to go.
2. Clear visibility, cool air prevents fogging.
3. Simple to use. No practice or complicated training. Anyone can use the Air-Pak with complete confidence.
4. Fresh, cool AIR — not oxygen, for 100% protection in all breathing hazards, even explosive petroleum vapors.
5. Free and easy breathing under all conditions. No breathing restraint even during extreme exertion.
6. Triple safe regulator design proven by hundreds of thousands of hours service.
7. Positive, constant check of available air supply with dependable gage. No timer, no guesswork.
8. Full-vision face mask with diaphragm exhalation valve permits conversation.
9. The AIR-PAK is all-purpose equipment, not just rescue apparatus.
10. Economical. Operates for as little as 50c per hour. There is no waste — air that is not used may be saved for next time.
11. The AIR-PAK is completely independent of surroundings — safe in any atmosphere, in any concentration. Can even be used under water!
12. Proven. Thousands in use by business, industry and the fire service.

SINCE 1932 Scott FOR SAFETY—FOR SERVICE

*WRITE TODAY FOR COMPLETE INFORMATION!*

SAFETY EQUIPMENT DIVISION

**SCOTT AVIATION CORP.**

215 ERIE STREET LANCASTER, N. Y.

Canada: Safety Supply Co., Toronto — Branches in principal cities
Export: Southern Oxygen Co., 15 West 57th Street, New York 19, New York

# Scott Air-Pak

## Safety Breathing Equipment *is sold by:*

ATLANTA, GEORGIA—Southeastern Safety Appliance Co.
BILLINGS, MONTANA—Big Horn Supply Co.
BIRMINGHAM, ALABAMA—Safety Engineering & Supply Co.
BOSTON, MASS.—American Fire Equipment Corporation
BRIDGEWATER, MASS.—Joseph L. Murphy
BUFFALO, NEW YORK—American Allsafe Co.
BUFFALO, NEW YORK—Young Fire Equipment Corp.
CHARLESTON, WEST VA.—Safety First Supply Co.
CHATTANOOGA, TENN.—Industrial Supply Co.
CHICAGO, ILLINOIS—Protective Equipment Co.
CLEVELAND, OHIO—Safety First Supply Co.
COLUMBUS, OHIO—W. E. Brantner Co.
DAYTON, OHIO—The Dayton Safety Supply Co.
DENVER, COLORADO—"Mac" Galley Equipment Co.
DETROIT, MICHIGAN—Sco Safety Products Co.
DULUTH, MINNESOTA—W. P. & R. S. Mars Co.
EAST ORANGE, NEW JERSEY—E. H. Notte
EAST ORANGE, NEW JERSEY—Guardian Safety Equip. Co.
ERIE, PA.—Fyr-Fyter Sales & Service Co.
GALWAY, NEW YORK—Galway Fire Equipment Co.
GLENDALE, OHIO—Ohio Valley Fire Equipment Co.
GREENS ORO, N. C.—Southern Oxygen Co., Inc.
HAMDEN, CONN.—O. B. Maxwell Co.
HARTFORD, CONN.—Industrial Safety Supply Co., Inc.
HONOLULU, HAWAII—Gaspro, Ltd.
HOUSTON, TEXAS—Allied Safety Equipment, Inc.
HOUSTON, TEXAS—Guardian Safety Equip. Co.
INDIANAPOLIS, INDIANA—Indiana Fire Prevention Co.
KALAMAZOO, MICHIGAN—Safety Services
KANSAS CITY, MISSOURI—Safety, Incorporated
KINGSPORT, TENN—Southern Oxygen Co., Inc.
KNOXVILLE, TENN.—Safety Equipment Distributing Co.
LAFAYETTE, LA.—Delta Fire & Safety Equip. Co.
LITTLE ROCK, ARKANSAS—Welders Supply Co.
LOS ANGELES, CALIF—E. D. Bullard Co.
LOS ANGELES, CALIFORNIA—Dickson Safety Products
LOUISVILLE, KENTUCKY—Orr Safety Equipment Co.
MARINETTE, WISCONSIN—Queen City Supply Co.
MEDFIELD, MASS.—Charles H. Clougherty
MEMPHIS, TENNESSEE—J. E. Dilworth Company
NEW ORLEANS, LA.—Delta Fire & Safety Equip. Co.
NEW YORK, N. Y.—E. H. Notte, E. Orange, N. J.
PEARL RIVER, NEW YORK—Geo. H. Bartels
PHILADELPHIA, PA.—Guardian Safety Equipment Co.
PHOENIX, ARIZONA—Thunderbird Sales Corp.
PITTSBURGH, PA.—Safety First Supply Co.
PORTLAND, OREGON—Munnell & Sherrill, Inc.
RIVERSIDE, R. I.—George C. Adams
ROANOKE, VIRGINIA—Southern Oxygen Co., Inc.
ROCHESTER, N. Y.—Rochester Safety Equipment Co.
ST. MARYS, PA.—C. H. Yetzer & Son
ST. LOUIS, MISSOURI—Safety, Incorporated
ST. PAUL, MINNESOTA—Continental Safety Equip., Inc.
SALT LAKE CITY, UTAH—Universal Safety & Fire Equip. Co.
SAN FRANCISCO, CALIF.—E. D. Bullard Co.
SEATTLE, WASHINGTON—L. N. Curtis & Son
SPRINGFIELD, MASS.—David Deane
SYRACUSE, NEW YORK—Syracuse Supply Co.
TOLEDO, OHIO—Safety First Supply Co.
TULSA, OKLAHOMA—Guardian Safety Equipment Co.
UTICA, NEW YORK—Link Fire Extinguisher Service
VERSAILLES, MISSOURI—Interstate Fire Equip. Co.
WASHINGTON, D. C.—Southern Oxygen Co., Inc.
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Branches:

MONTREAL, QUEBEC
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. . . our 62nd year . . . .

# The HOME of POWHATAN BRASS . . . .

*Here among the rugged, beautiful hills of West Virginia are nearly six acres—and a modern plant devoted to making the country's finest brass goods for fire protection forces of municipalities — army — navy and big industrials. You'll never go wrong when you specify — Powhatan.*

QUARTER-TURN SHUT-OFF SIAMESE

"SENSIBLE LUG" COUPLING

ACHEM NOZZLE

**POWHATAN BRASS and IRON WORKS**

**RANSON, WEST VIRGINIA**

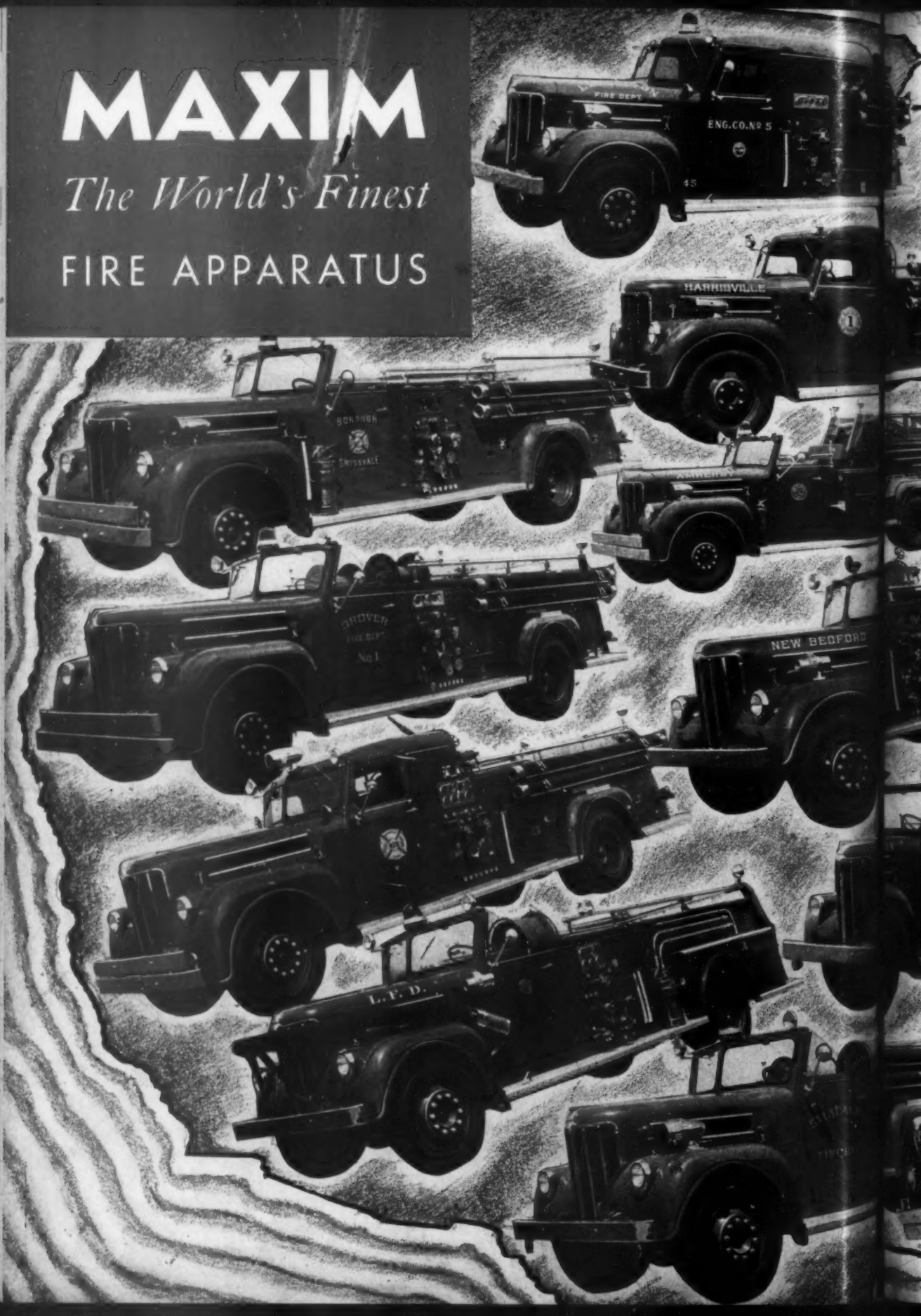
Phones 93 & 94 Charles Town West Virginia

Established 1892

# MAXIM

*The World's Finest*

FIRE APPARATUS



***We design and build a complete line of the finest fire apparatus money can buy . . . pumpers 500 to 1500 GPM — aerials 65' to 85' and Maxim Magirus 100' to 170'***

MAXIM MOTOR COMPANY

MIDDLEBORO, MASSACHUSETTS

# Reduce Costs and Losses with HOMELITE

**CARRYABLE EQUIPMENT**

**HOMELITE**

**Carryable Pumps**

Low cost, lightweight, and fast dependable performance in all kinds of weather. Pumps out flooded cellars without tying up man power or heavy equipment. Supplies water to pumpers . . . as much as 250 gallons per minute. Can work two 1½" hose lines through Siamese connection. Gasoline engine driven.

**HOMELITE**

**Carryable Generators**

For instant power *anywhere* . . . power for brilliant flood and spot lights . . . power for electric tools . . . emergency power for operating alarm signals and other essential communications or for hospitals, schools and other public buildings during failures of normal power. Gasoline engine driven. Operates in any weather. Capacities up to 5000 watts.

*Send for complete Fire Department bulletin on Homelite Gasoline Engine Driven Pumps and Generators.*

*Manufacturers of Homelite*
*Carryable Pumps • Generators*
*Blowers • Chain Saws*

PERFORMANCE · DEPENDABILITY · SERVICE

**HOMELITE CORPORATION**

310 RIVERDALE AVENUE • PORT CHESTER, N. Y.

*Canadian Distributors:* Terry Machinery Co., Ltd., Toronto, Montreal, Vancouver, Ottawa.

# NEW!

# FOG-HOG®

**500 G.P.M.**
**1,000 G.P.M.**
SIZES

**See Our Exhibit at the I.A.F.C. Show BOOTH Nos. 37 & 38**

## A HOG FOR FOG
**[or straight stream]**

PERFORMANCE DATA

| STYLE | P.S.I. | 60° Fog G.P.M. | Reach | 30° Fog G.P.M. | Reach | Straight Stream G.P.M. | Reach |
|---|---|---|---|---|---|---|---|
| **1245** 2½" 500 G.P.M. | 100 | 536 | 40 ft. | 517 | 60 ft. | 415 | 145 ft. |
| **1247** 2½" 1,000 G.P.M. | 100 | 1083 | 55 ft. | 1069 | 75 ft. | 957 | 150 ft. |

AKRON BRASS MFG. COMPANY, INC., WOOSTER, OHIO

### FEATURES

- **VOLUME** Tremendous gallonage and projection.
- **VERSATILE** Use on ladder pipes, deluge guns, deck pipes and monitors.
- **EASE OF OPERATION** Solid fog cone and all degrees of fog, straight stream or shut-off are instantly available. Akron design insures bind-free operation at all pressures.
- **DURABLE** Large rubber bumpers and Akron Brass provide years and years of trouble-free service.
- **ROCKERLUG** Easy, positive attachment to any 2½" thread.

*500 G.P.M. and 1,000 G.P.M. sizes*

***Ask Your Distributor or Send Coupon TODAY For Full Information!***

# AKRON BRASS
## IRE FIGHTING EQUIPMENT

To AKRON BRASS MFG. COMPANY, INC.
WOOSTER, OHIO

Yes! Without obligation, please send complete information on the following:

_____ Akr-O-Jet _____ Forgex _____ Fog-Hog _____ Auto-stream

NAME _____

ADDRESS _____

CITY _____ ZONE ____ STATE _____

Printed in U.S.A.

# Double Shut-Off!

# Easy to Turn Under Pressure!

# AKR-O-JET®

## FOG NOZZLE

SEE OUR
EXHIBIT
AT THE
I.A.F.C. SHOW
Booth Nos. 37 & 38

| PERFORMANCE DATA | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | 60° Fog | | 30° Fog | | Straight Stream | |
| STYLE | P.S.I. | G.P.M. | Reach | G.P.M. | Reach | G.P.M. | Reach |
| 1201 1" | 125 | 32 | 13 ft. | 28 | 23 ft. | 24 | 75 ft. |
| 1212 1½" | 100 | 110 | 18 ft. | 90 | 30 ft. | 75 | 100 ft. |
| 1221 2½" | 90 | 175 | 28 ft. | 170 | 40 ft. | 143 | 130 ft. |

## FEATURES

**DOUBLE SHUT-OFF** Opens from shut-off directly in fog or straight stream. Reduce water damage opening nozzle directly to fog.

**EASE OF OPERATION** All degrees of fog, straig stream, or shut-off are instantly available. Akr-O-J Design makes adjustment easy at all pressures.

**SOLID FOG CONE** Teeth chew water into so fog cone.

**DURABLE** Tough, rugged construction provides yea of trouble-free service.

**POSITIVE GRIP** Rib-grip for sure-grip.

**SMALL STREAM** For washdown.

*3/4"—1", 1-1/2" and 2-1/2" sizes*

# AKRON BRASS
## FIRE FIGHTING EQUIPMENT

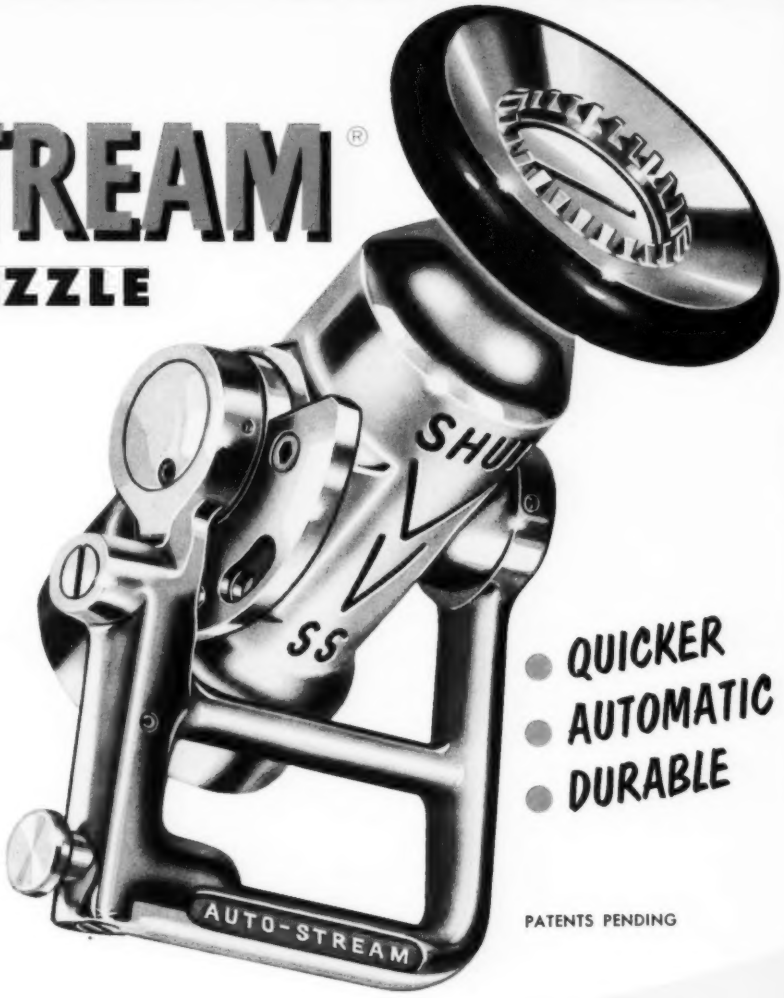
FOR FULL INFORMATION SEN
COUPON ON PRECEDING PAG

**AKRON BRASS MFG. COMPANY, IN**
Wooster, Ohio

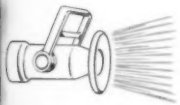
Printed in U.S.A.

# AUTO-STREAM®

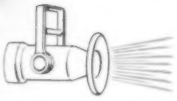
## FOG NOZZLE



Automatic shut-off. Water pressure keeps it shut.



Full, solid fog-pattern, personnel protection, instant smothering.



Effective long-distance fog. Saturating indirect waterfog application.

Perfect straight stream. Non-feathering, far-reaching.

- QUICKER
- AUTOMATIC
- DURABLE

PATENTS PENDING

| PERFORMANCE DATA | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | 60° Fog | | 30° Fog | | Straight Stream | |
| STYLE | P.S.I. | G.P.M. | Reach | G.P.M. | Reach | G.P.M. | Reach |
| 202A ¾" | 125 | 18 | 13 ft. | 16 | 23 ft. | 13 | 75 ft. |
| 202 1" | 125 | 32 | 13 ft. | 28 | 23 ft. | 24 | 75 ft. |
| 213 1½" | 100 | 110 | 18 ft. | 90 | 30 ft. | 75 | 100 ft. |
| 222 2½" | 90 | 175 | 28 ft. | 170 | 40 ft. | 143 | 130 ft. |

## FEATURES

**QUICKER** Pull the handle and a solid ball of fog hits the fire. A full curtain spray protects you against flash-backs.

**AUTOMATIC** One motion and you're automatically locked in the stream you want. No opening of a shut-off and twisting to select the stream.

Positive Positioning — Stream selected stays put — drop it, hit it, beat it — Auto-Stream nozzle can't pull out of position until you move it.

**DURABLE** Breakproof handle, shockproof bumper, tough all brass body. Can't get out of alignment even when dropped or bumped.

**SELF-LUBRICATING** Needs no greasing. Water does the job.

**NON-FREEZING** Perfect for cold weather use.

*Available in 3/4", 1", 1-1/2" and 2-1/2"*

WELCOME TO THE I.A.F.C. CONVENTION

FOR FURTHER INFORMATION USE COUPON ON PAGE ONE OF THIS INSERT.

**AKRON BRASS MFG. COMPANY, INC.**

Wooster, Ohio

Printed in U.S.A.

# AKRON BRASS

## FIRE FIGHTING EQUIPMENT

# Always Specify

# FORGEX®

**The Lightest, Toughest Drop-Forged Fire Hose Couplings All Brass, Non-Corrosive . . .**

**LIGHTER**—Half the weight of ma couplings.

**STRONGER**—Independent laborato tests show Forgex up to 100% stronger tha other couplings.

**GRIPS LIKE A BULLDOG**— Forgex has been tested to over 1500 pound on hose. The hose will blow before Forge will go.

*For Full Information, Use Coupon on First Page*

**AKRON BRASS**
**FIRE FIGHTING EQUIPMENT**

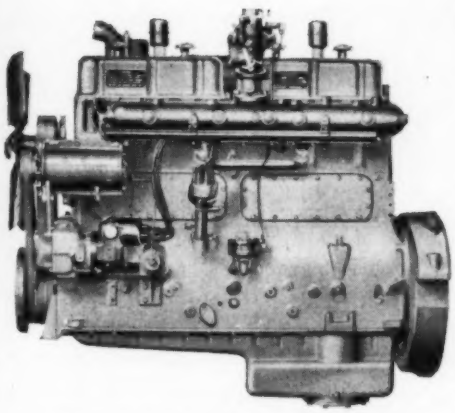
**AKRON BRASS MFG. CO., IN**
**WOOSTER, OHIO**

Printed in U.S.A.

# ATOMIC ENERGY
## installations and production
# PROTECTED

## by 22 of these HOWE pumpers

## powered with WAUKESHA FIRE FIGHTER ENGINES



**WAUKESHA 145-GZB High Output FIRE FIGHTER ENGINE**—six cylinders, 5⅜-in. bore x 6-in. stroke, 817 cu. in. displ., with counterbalanced and vibration dampened 3½-in. 7-bearing hardened crankshaft; dual ignition; precision extra high capacity bearings; overhead valves with Stellite-faced exhaust valves and seats; removable wet sleeve cylinders. Arranged for full electrical equipment and all modern accessories. Send for Bulletin 1594.

Fire fighting power must be faster, and most reliable at Los Alamos, New Mexico. Here are the Atomic Energy Commission installations. Every safeguard must be used to protect them and their production! Here, too, high altitude complicates the problem; demands plus performance from the power plant! But the *high output* of Waukesha Fire Fighter Engines fully meets both road and pumping needs. For these *Howe Pumpers*... Underwriter rated 750 g.p.m. Class A, with 150-gal. booster tanks, and full complementary equipment... are built by Howe Fire Apparatus Co., Anderson, Indiana, and are powered with Model 145 Waukesha Fire Fighter Engines. At Los Alamos there are ten of these *Howe Pumpers* and the Atomic Energy Commission has twelve more such Waukesha-powered *Howe* units protecting their Atlanta, Georgia installations.

217

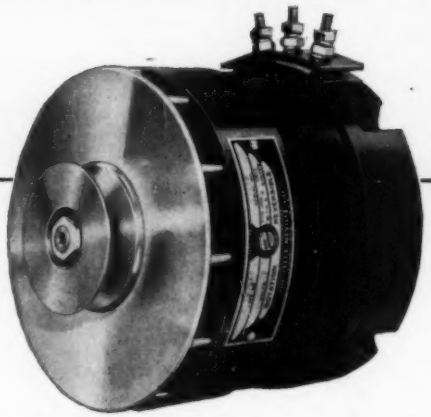
**WAUKESHA MOTOR COMPANY, WAUKESHA, WIS. • NEW YORK • TULSA • LOS ANGELES**

WHEN *Seconds Count..*

# Leece-Neville

## High-output ALTERNATORS

*Guarantee—*



**1—AMPLE POWER for RADIO, SIREN, LIGHTS**
***SAVE THE BATTERY!***

L-N Alternators carry the load: up to 95 amps for 6-volt systems; to 180 amps for 12-volt systems; to 100 amps for 24-volt systems. No danger of draining battery.

**2— CHARGING CURRENT WITH ENGINE IDLING**

At the fire you can have unlimited use of 2-way radio because the L-N Alternator produces 25 to 40 amps charging current **with engine idling.** Keeps battery "up".

**3— 110 VOLTS FOR FLOOD LIGHTS, POWER TOOLS**

Leece-Neville Transformer gives you up to 1200 watts at 110 volts . . . current for spot or flood lights, half-inch drill, power saw, etc.

**THE ORIGINAL AC-DC GENERATING SYSTEM RECOGNIZED EVERYWHERE!**

Since 1946, more and more Fire Depts. have made L-N Alternators standard. Some of these are:

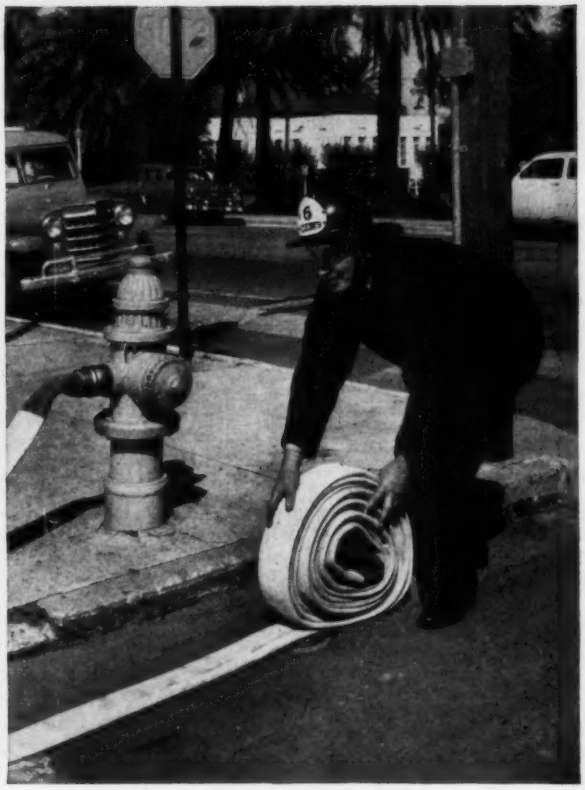
Atlanta, Boston, Buffalo, Chicago, Cleveland, Dallas, Denver, Detroit, Los Angeles, Miami, Montreal, New York, Pittsburgh, Toronto.

• There are many more advantages to Leece-Neville Alternators. For all the facts, and name of your nearby, friendly L-N Distributor, write today to The Leece-Neville Company, Cleveland 14, Ohio. *Distributors in principal cities . . . Service Stations everywhere.*

***BE SURE TO SPECIFY LEECE-NEVILLE***

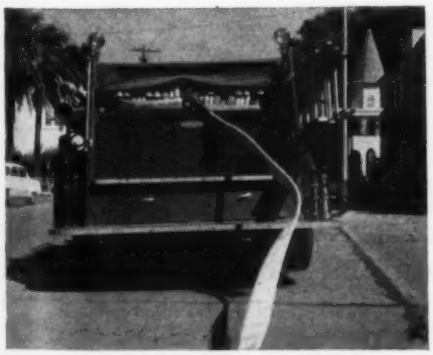
you can rely on Leece-Neville Alternators

**proved by performance for over 8 years**



*Florida Fire Dept. Reports:*

# Lighter to carry . . . easier to coil, hose made with "Dacron"* is strong . . . flexible



**Hose made with "Dacron"** makes fast hose laying easier for the Ocala Fire Dept., because it's light in weight and very flexible. Coiling and racking are easier, too.

*REG. U.S. PAT. OFF.

"I like hose reinforced with 'Dacron'," says Chief T. B. Sexton of the Ocala Fire Dept., Florida, "because it's light in weight, rolls up more compactly, and because more of this type hose can be carried on the apparatus." Above, two members of the department show how hose made with "Dacron" is easier to handle in action . . . easier to coil and rack when the job is done.

Fire departments all over the country are reporting better performance from hose made with "Dacron" polyester fiber. This man-made fiber is used as the load-carrying "filling" cord that reinforces the hose . . . permits a hose that's light and flexible, yet stronger than ordinary hose of the same diameter. "Dacron" maintains its strength when wet . . . is not subject to attack by mildew.

Two years of field testing under all conditions conclusively prove the superiority of hose made with "Dacron". Du Pont makes only the "Dacron" fiber . . . does not manufacture hose. Fire hose made with "Dacron" is produced by many of the leading fire-hose manufacturers. Order it from your supplier next time you need hose. E. I. du Pont de Nemours & Co. (Inc.), Textile Fibers Department, Wilmington 98, Delaware.

**ADVANTAGES OF FIRE HOSE MADE WITH "DACRON":**

- Lighter
- Stronger
- More flexible
- Cuts loading time
- Saves space

**DACRON**
**POLYESTER FIBER**

DU PONT
REG. U.S. PAT. OFF.

**BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY***

# FIRE CHEX PRODUCTS

***Built by*** **FIRE MASTER CORP., Mt. Clemens, Mich.**

**Description:**

**1000 G.P.M. Pumper using Hale Pump.**
**Firemaster chassis using 250 B. H. Power Waukesha Motor, 7 man cab.**

**Everything Custom Built by Fire Master.**

**We build All Types Motorized Fire Equipment including Pumpers from 500 G.P.M. to 1500 G.P.M. Tankers with up to 1500 gallons of water. Ladder Trucks and other types of motorized fire equipment.**

**MANUFACTURERS—FIRE TRUCKS, APPROVED FIRE EXTINGUISHERS, ALLIED PRODUCTS, FIRE HOSE AND ALL TYPES FIRE EQUIPMENT**

***Please send for our new off the press Catalogue***

## FIRE MASTER CORPORATION

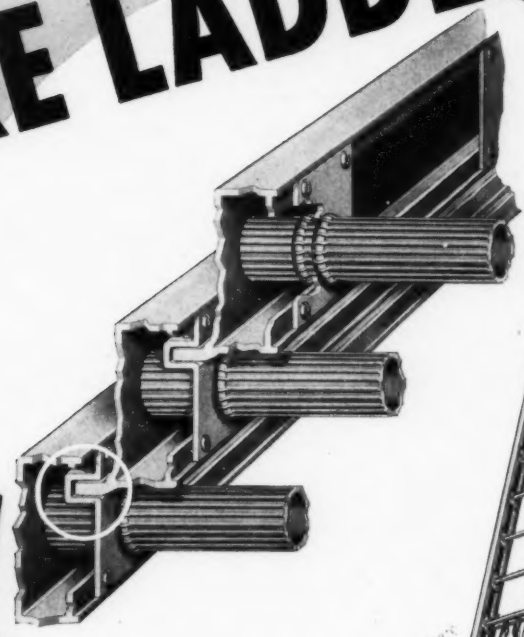
**MT. CLEMENS, MICHIGAN**

THE SPOTLIGHT IS ON THIS NEW

# DUO Safety FIRE LADDER

## SERIES 900-A

WITH EXCLUSIVE TONGUE AND GROOVE CONSTRUCTION



TWO SECTION SERIES 900-A

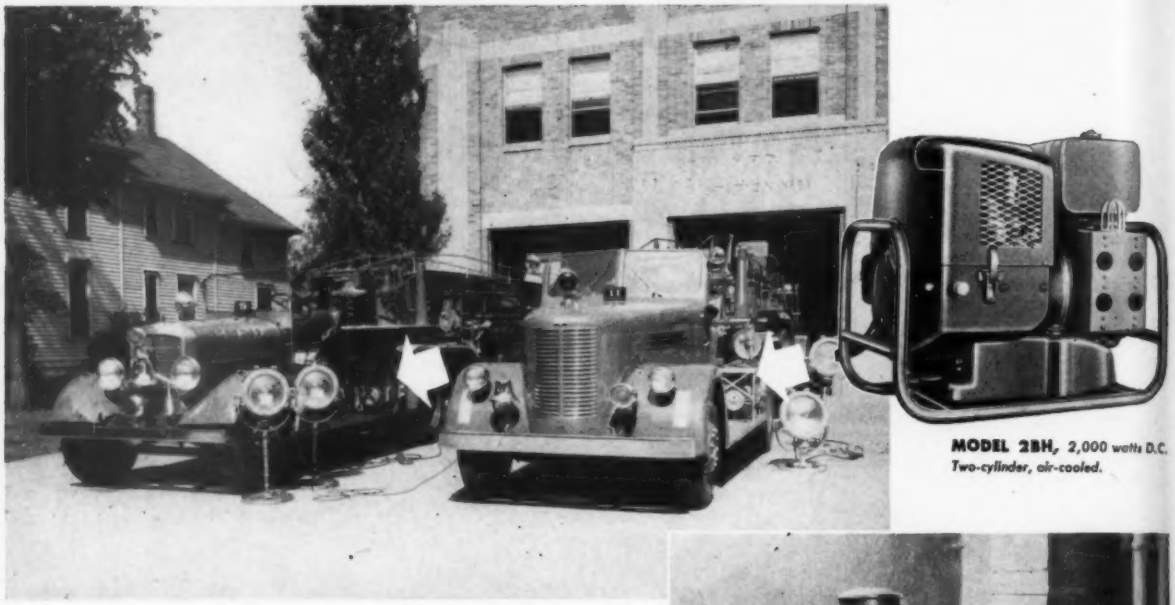
## A BRAND NEW DESIGN IN THE FAMOUS DUO-SAFETY LINE

. . . and featured in the fire ladder spotlight is this new, outstanding development in aluminum ladder construction. It's Duo Safety's latest addition — the 900-A Series Fire Ladder which combines the strength and safety of Channel Rail construction with an exclusive tongue and groove design that firmly and securely locks the sections together without hooks or brackets. This outstanding structural arrangement prevents jack-knifing of the ladder — and — eliminates the possibility of finger-pinching! Series 900-A will add safety and dependability to your use of fire ladders — Write today for catalog page on this fine new ladder and others in the complete Duo-Safety line.

## DUO-SAFETY LADDER CORPORATION

**809 Ninth Street • Oshkosh, Wisconsin**

# Here's how the Minneapolis Fire Department uses ONAN ELECTRIC PLANTS



**MODEL 2BH,** 2,000 watts D.C. *Two-cylinder, air-cooled.*

## Rigs like these take along their own fire-fighting light and power

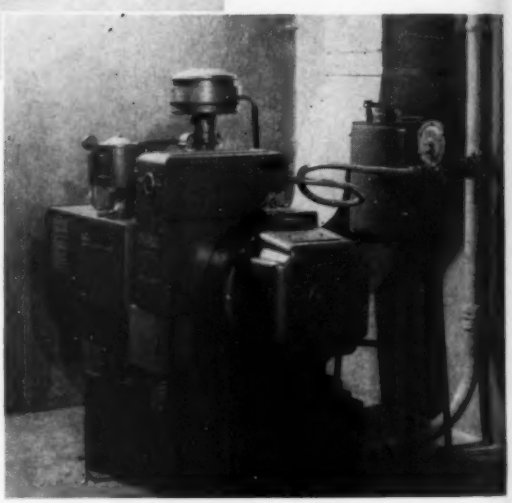
These trucks are two of several equipped with permanently mounted 1,500 and 2,000-watt Onan Electric Plants. They supply plug-in power for floodlights, hand lights and all kinds of motor-driven, fire-fighting equipment. On other rigs, the Onan Electric Plants are provided with quick release bases. The entire unit can be instantly removed from the truck and carried anywhere it is needed.

The day and night fire-fighting effectiveness of nearly any type of rig can be improved by equipping it with an Onan Electric Plant. Powered by 4-cycle, air-cooled engines, Onan Electric Plants start easily in any weather, run smoothly and quietly, and will operate continuously with minimum attention.

### Auxiliary vehicles are Onan-equipped

Electric power on rescue trucks is provided by Onan Electric Plants. A new rig which will be put into service shortly includes an Onan 5CW, 5,000-watt electric plant as a source of power for lights and motor-driven equipment.

Minneapolis also has a fleet of big, mobile demonstration units used in fire prevention education and these are supplied with light and power from Onan Electric Plants.



### ONAN Standby Electric Plants guard communications

At two fire stations in Minneapolis where the main and auxiliary radio transmitter-receivers are located, Onan 10CW, 10,000-watt A.C. electric plants assure electricity when commercial power is interrupted. These plants are equipped with controls which start the electric plants automatically when power is interrupted and stop them when power is restored. Both plants operate on city gas, with gasoline as a standby fuel.

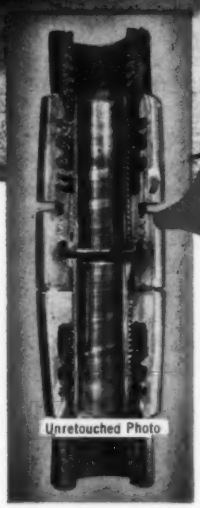
The 10CW units have sufficient capacity to handle the entire electrical load of the fire stations in addition to supplying current for radio communications.

***Write for special folder on fire department models.***

Onan ELECTRIC PLANTS

## D. W. ONAN & SONS, INC.

5726 UNIVERSITY AVE. S.E., MINNEAPOLIS 14, MINNESOTA




# BAR-WAY COUPLINGS . . .

## For booster and high pressure fog lines

There are four good reasons why the fire fighters specify BAR-WAY couplings. Four reasons why BAR-WAY couplings are growing in favor with firemen, hydraulic engineers and others who insist on the best.

- **SAFETY**—The coupling becomes the *strongest part of the hose line*. Tested to 3000 pounds pressure and 500 pounds pull.
- **FULL FLOW**—No suppression of flow in coupling. No shrinkage of hose at coupling.
- **FLEXIBILITY**—Reels smoother. Easily replaced. Nothing to catch on corners or underbrush.
- **BETTER MADE**—Accurately machined, always the same, interchangeable. WILL NOT FAIL.

Send for our free pamphlet. Gives detailed specifications for all types of pressure hose, ID and OD.

**BAR-WAY**
**MFG. CO.**
STAMFORD, CONN.

# *New!* ELECTRIC STARTING SEA-HORSE 25

*Push-Button Starting*

- **Electric Starting!** — ALSO EQUIPPED FOR MANUAL STARTING
- **25 Horsepower!**
- **Speeds over 30 mph!**
- **Fitted for Ship-Master Remote Control!**
- **Gear Shift!** FORWARD-NEUTRAL-REVERSE
- **Mile-Master Fuel System!** 6 GALLONS
- **Fitted for Fuel-Master Supply System!**
- **Twist-Grip Speed Control!**

**Johnson**
**SEA-HORSE**
**OUTBOARD MOTORS**

Talk about the "automatic outboard." This is IT! Here is everything that has made the Sea-Horse 25 sensational — PLUS JOHNSON-ENGINEERED ELECTRIC STARTING!

It spins into action at the first touch of the starter button (still equipped for manual starting, too). In fact, this great motor is engineered so that you can choke, start, shift, throttle, steer, and stop *without leaving your seat up front!* In addition to the 6-gallon Mile-Master Fuel System (standard equipment), it's fitted for Johnson's amazing new Fuel-Master Supply System, for *extra-long* cruising range — and Ship-Master Remote Control, for shift-and-throttle operation.

Nothing has ever been created to make outboard handling so simple, so convenient, so luxurious. Get the full story. See your Johnson Dealer. Look for his name under "Outboard Motors" in your classified phone book.

**FREE!**

Send for colorful, fully-illustrated catalog which describes, in detail, the Electric Starting Sea-Horse 25 and the four other great Johnsons. Catalog is yours for the asking. Write to:

**JOHNSON MOTORS**
**7000 Pershing Road, Waukegan, Illinois**
*In Canada: Mfd. by Johnson Motors, Peterborough*

**5 GREAT SEA-HORSES FOR 1954**

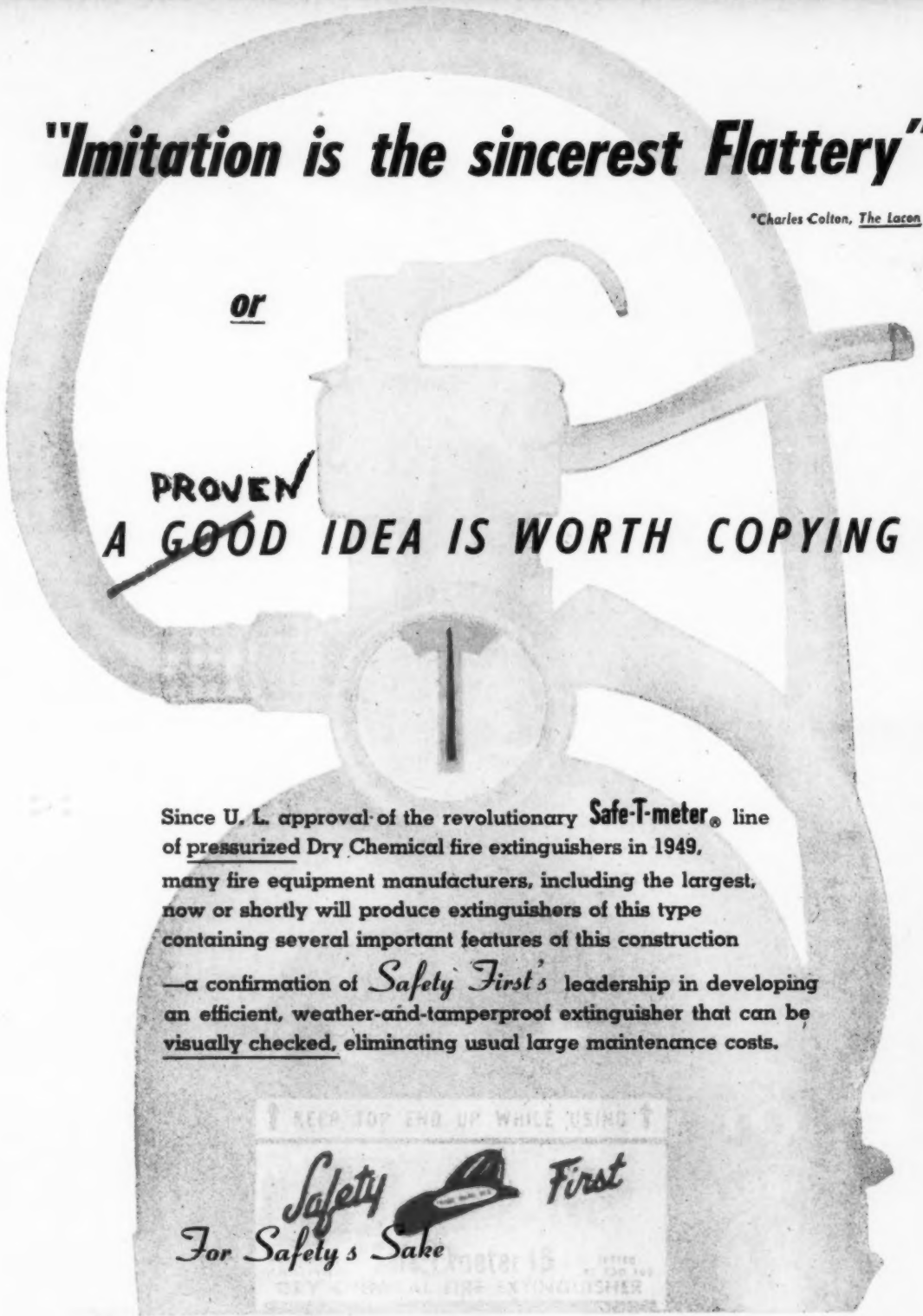
**ELECTRIC STARTING SEA-HORSE 25**—25 hp. The "automatic outboard" ..... $498.00*
**SEA-HORSE 25**—25 hp. Over 30 mph! Everything Deluxe ..... $410.00*
**SEA-HORSE 10**—10 hp. New! Improved! Now more brilliant than ever! ..... $297.50*
**SEA-HORSE 5½**—5½ hp. Revolutionary *Quiet!* Suspension Drive. All the "big-motor" features with "little-motor" weight ..... $210.00*
**SEA-HORSE 3**—3 hp. "The littlest Sea-Horse." Rugged. Amazing Angle-matic Drive ... $145.00*
**SHIP-MASTER REMOTE CONTROL**—Shift-and-throttle. Corrosion-proof. Instant hook-up on Sea-Horse 5½, 10 and both 25's. From ..... $29.50*

**Prices f.o.b. factory, subject to change. OBC certified brake hp at 4000 rpm.*

# "Imitation is the sincerest Flattery"*

*Charles Colton, The Lacon

**or**



PROVEN

## A GOOD IDEA IS WORTH COPYING

Since U. L. approval of the revolutionary **Safe-T-meter**® line of pressurized Dry Chemical fire extinguishers in 1949, many fire equipment manufacturers, including the largest, now or shortly will produce extinguishers of this type containing several important features of this construction

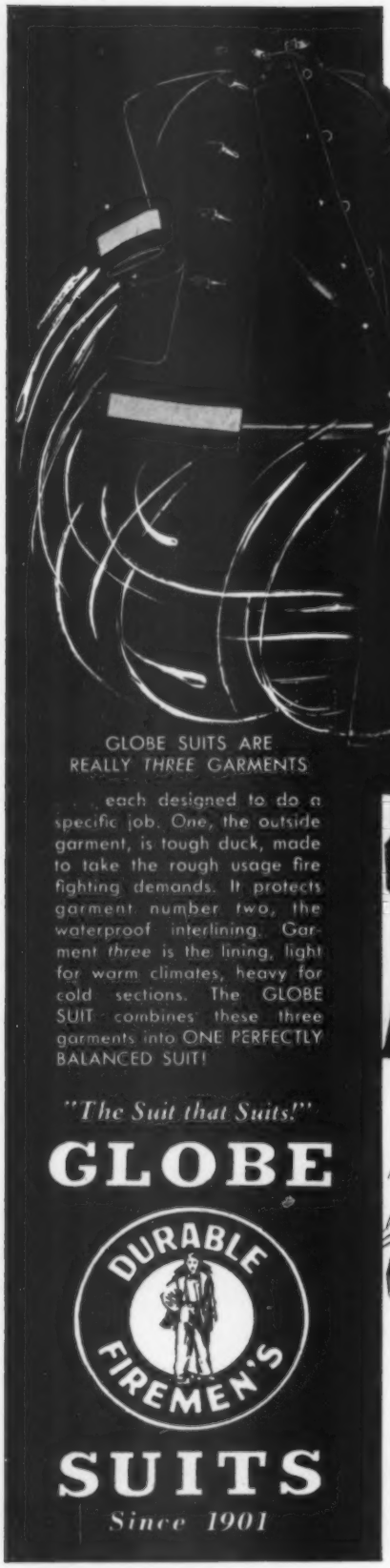
—a confirmation of *Safety First's* leadership in developing an efficient, weather-and-tamperproof extinguisher that can be visually checked, eliminating usual large maintenance costs.

*Safety* First

*For Safety's Sake*

**Safety First**

**PRODUCTS CORPORATION**
**ELMSFORD, NEW YORK**



23D—Detachable
With "SCOTCHLITE"

# ALL WEATHER

GLOBE SUITS ARE
*ABSOLUTELY GUARANTEED!*

They insure a long, serviceable life, and maximum protection when you need it most.

Globe Suits are comfortable, warm, and dry . . . ready for action in any weather. Quick-Hitch Globe Suits have been endorsed by Fire Chiefs everywhere.

See them at your dealer's or write for our new and complete catalog.

GLOBE SUITS ARE
REALLY *THREE* GARMENTS

. . . each designed to do a specific job. One, the outside garment, is tough duck, made to take the rough usage fire fighting demands. It protects garment number two, the waterproof interlining. Garment three is the lining, light for warm climates, heavy for cold sections. The GLOBE SUIT combines these three garments into ONE PERFECTLY BALANCED SUIT!

28D—Detachable

27R—Light Weight

24R—Wool Lining

29R—Light Weight

*"The Suit that Suits!"*

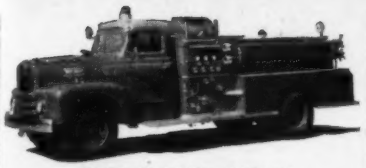
**GLOBE**

DURABLE FIREMEN'S

**SUITS**

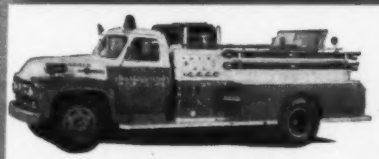
*Since 1901*

GLOBE MANUFACTURING COMPANY
PITTSFIELD, NEW HAMPSHIRE



WEST CHICAGO, ILLINOIS

BRIELLE, NEW JERSEY



FERNDALE, PENNSYLVANIA

MORNINGSIDE, MARYLAND

OAKFIELD, NEW YORK

EUREKA, ILLINOIS

ARMOR, NEW YORK

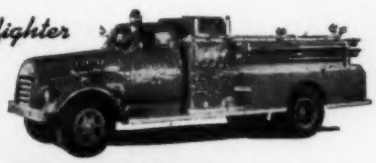
# *The* **TREND** *in Modern Fire Apparatus is to John Bean* **HPV*** *Two-Fisted Fire-Fighters*

Today's trend in fire fighting is to the double punch — John Bean High-Pressure Fog plus John Bean Volume Power. Communities everywhere are specifying *both* — and are gaining the fool-proof protection afforded by the biggest fire-fighting wallop ever packed into a single unit.

For in-fight and the quick knock-out, there's atomized fog delivered at 600 PSI nozzle pressure by John Bean's High-Pressure Pump. Only true high-pressure fog has effective triple action — to cool, to smother, to isolate. Temperatures drop and flames go out in seconds — with only 10% of the water used with ordinary pressures. Then, for long-range slugging power, there's the John Bean Volume Pump to deliver 500, 600 or 750 GPM, depending on engine horse-power. The two pumps operate separately or simultaneously, from hydrant, straight-draft, or the 500-gallon tank on the truck.

The trend to HPV* is significant *for your community.* Write for the full story today.

*** HPV** - *the fire-fighter with both*



**High-Pressure Fog and Volume Pumps**

**JOHN fmc BEAN**

**TWO-FISTED FIRE-FIGHTERS**

*Can be mounted on most standard truck chassis*

John Bean Division
Dept. 126
Lansing 4, Michigan

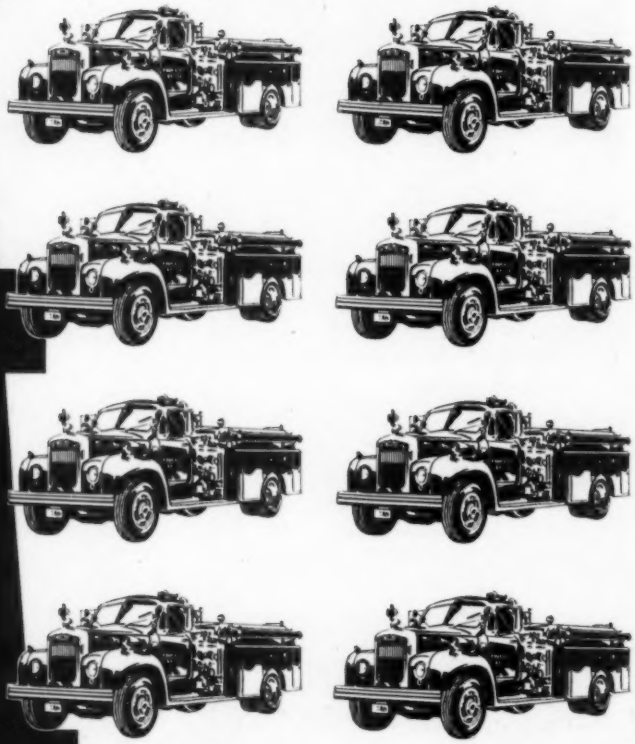
John Bean Division
P.O. Box 145
San Jose, California

**A PRODUCT OF FOOD MACHINERY AND CHEMICAL CORPORATION**

**MACK**
*latest design*
*in fire trucks*
*uses*

# HIGH FOG

*latest design*
*in high pressure*
*centrifugal pumps*



**MACK** Truck has chosen High Fog Pumps for standard equipment installation on eight of their newest trucks.

The High Fog Pump is a high pressure, 4-stage centrifugal pump capable of 600 to 800 pounds efficiency with a delivery of 60 to 80 GPM. Yet because of its extremely light weight (210 lbs.) and small overall size, it is adaptable for installation on existing equipment or for standard apparatus on new machines. Power take-off can be made from the transmission with opposite-engine or engine rotation available.

## SPECIFICATIONS

| | |
|---|---|
| *Weight:* | 210 lbs. complete |
| *Overall Length:* | 26" |
| *Diameter:* | 9½" |
| *Overall Height of Gear Box:* | 15" |
| *Max. Pressure:* | 1000 lbs. |
| *Delivery:* | 60 GPM at 800 lbs.<br>80 GPM at 600 lbs. |
| *Intake:* | 2" |
| *Discharge:* | 1½" |
| *Castings for Main Case:* | Nickel alloy iron |
| *Impellers:* | Bronze on stainless shaft |
| *Gear Ratio:* | 5 to 1 |

**Write the manufacturer for additional information**

afec **ASSOCIATED FIRE EQUIPMENT CO.**
1915 S. SAN PEDRO STREET • LOS ANGELES, CALIFORNIA

IT TAKES A LOT OF

# CONFIDENCE

*(based on past experience and good judgement)*

**TO BUY,** *in one order..*

W. G. Strickfaden, Fire Chief, Columbus, Ohio examines a portion of the shipment recently received from Bi-lateral Fire Hose Company

*Bi-Lateral! First to recognize the need for and construct fire hose with the Bi-Lateral feature.*

## 6½ *miles of* FIRE HOSE!

*First to change pin lug to rocker lug couplings.*

*First to offer FREE fire hose record cards to fire depts. They are still available.*

Yes! A man must be *sure* of the value to his city before he places an order for 35,000 feet of fire hose. And with *Bi-lateral*, you *know* you can *always* be sure! Bi-lateral is the hose that is manufactured *without* a *single compromise*. As hose manufacturers we know we are dealing with *lives*, not dollars — and Bi-lateral Hose is built on the premise that "Safety is Worthless Unless it is *Absolute*."

**Bi-Lateral FIRE HOSE CO.**

20 N. WACKER DRIVE, CHICAGO 6, ILLINOIS

# OREN

**BUILDERS OF QUALITY CUSTOM-BUILT APPARATUS,**

**ALSO CONVERSIONS OF ALL MAKES OF**

## COMMERCIAL CHASSIS

**TO MEET THE INDIVIDUAL REQUIREMENTS OF THE FIRE SERVICE CUSTOMER . . .**

Shown above is a Commercial Chassis Converted by OREN to the exacting Requirements of Windber Fire Company, Windber, Pennsylvania. Note the Front Fenders which were completely redesigned from the Original along with many other improvements in utility and appearance.

*We will be happy to have a qualified Representative discuss your Requirements with you — No Obligation*

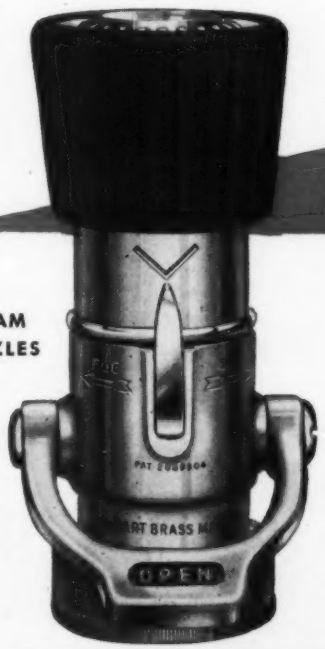
*"The South's Only Fire Truck Manufacturer"*

## OREN ROANOKE CORPORATION

**ROANOKE 2, VIRGINIA**

# Could our Elk be "smiling"?

YES! Elkhart Mystery Nozzles have been shipped from Canada to the Gulf of Mexico—throughout our land and others . . . serving Los Angeles, Chicago, New York, Miami, Seattle, Dallas, Akron, Memphis, Indianapolis, Chattanooga, Kalamazoo, Cleveland, Hawaii, Alaska, Iran . . . to these and thousands more. To the Giants in every field of industry too! What's more, in a little over a year the demand developed for Elkhart's new Select-O-Stream Mystery Nozzle is unprecedented in our fifty-two years of business. *This is acceptance.* Good reason to "smile"... the solid kind of smile that only a good product can bring its maker.




**SELECT-O-STREAM MYSTERY NOZZLES**

Embossed stream indicators "tell" your fingers by touch. Locks to the stream you choose. Opens or closes in any position. Protective curtain . . . 30° fog to straight stream—and any degree of stream in-between.

**Write for your FREE copy today**

"WATER...The Universal Extinguishing Agent" by Lloyd Layman
a 12-page booklet describing the worth of water fog.

**ELKHART BRASS MFG. CO., Inc.**

**ELKHART, INDIANA**

*Introducing*

**WOOSTER BRASS**

# MANGA-FORGE

**FIRE HOSE COUPLINGS**

**Strong**

**Light**

**Durable**

## ENGINEERED TO HIGH-PRESSURE, LIGHTWEIGHT FIRE HOSE SPECIFICATIONS

What are the requirements of an ideal fire hose coupling? We set out to find the answers to that question by asking fire chiefs and fire hose manufacturers.

Those answers are now built into the new Manga-Forge Coupling after nearly two years of development and exhaustive testing. This coupling more than meets all the requirements of the latest developments in lightweight, heavy duty and standard fire hose by combining the strength of forged manganese with ring reinforcement in the expansion area. The Manga-Forge Coupling is structurally engineered for maximum strength and safety with minimum weight. Design features prevent this coupling from going "out of round" under impact and stress. It will not slip, creep, or blow off at any fire pump pressure.

You can depend on Manga-Forge Fire Hose Couplings to give you better service and longer service. Specify them on all new hose orders.

### FOR GREATER STRENGTH

Forged from a special manganese-bronze alloy for strength, durability and corrosion resistance. Extra heavy in the expansion area with a reinforcing ring added in the middle of the hose bowl.

### FOR LIGHTER WEIGHT

Lighter than ordinary couplings. Weight is reduced to a minimum for easiest handling, yet structural design gives this coupling a wide margin of strength to sustain shock, stress and impact.

### FOR ADDED PROTECTION

Reinforcing ring protects those parts of the coupling most susceptible to damage — the threads and the swivel when hose is either coupled or uncoupled.

**COUPLING DESCRIPTION FOR INCLUDING IN YOUR HOSE SPECIFICATIONS**

Couplings to be forged from a manganese-bronze alloy, with reinforcing rings located at the mid-section of the hose bowls. Three rocker-type lugs on the male and swivel with Higbee indicator.

**WOOSTER BRASS**

A DIVISION OF THE FYR-FYTER COMPANY

# LOOK OUT, FIRE!

**TWO OF THE GREATEST NAMES IN FIRE PROTECTION**

**HAVE JOINED FORCES**

PYRENE and C-O-TWO, world-renowned manufacturers of approved fire protection equipment, are now unified under the same management to give you the finest and most complete line on the market today . . .

- ★ **built-in fire detecting systems that quickly respond to smoke, heat or flame . . .**
- ★ **all types of portable fire extinguishers and built-in fire extinguishing systems that kill fire fast . . .**
- ★ **plus an expert fire protection engineering service that gives you unbiased advice on what is best for your particular fire hazards.**

Don't take unnecessary chances . . . the combined fire protection experience of PYRENE and C-O-TWO over the years is at your disposal without obligation. Get complete facts today!

Pyrene

**PYRENE — C-O-TWO**

**NEWARK 1 • NEW JERSEY**

Sales and Service in the Principal Cities of United States and Canada

C-O-TWO

**COMPLETE FIRE PROTECTION**

portable fire extinguishers . . . built-in fire detecting and fire extinguishing systems

CARBON DIOXIDE • DRY CHEMICAL • VAPORIZING LIQUID • SODA-ACID • WATER • CHEMICAL FOAM • AIR FOAM

# THERMAC COMPANY
## protects its property *Automatically*.... gets better FIRE and BURGLARY PROTECTION and

*The complete automatic protection supplied our company by ADT Services has proved more effective in safeguarding our property and continuity of operations than former methods. In addition, it has made it possible for us to save $7,000 a year.*

J. W. Turner
Secretary-Treasurer, Thermac Company

After trying other methods of safeguarding their premises, the Thermac Company, a Los Angeles concern specializing in general machine work and manufacture of gas furnace shut-off valves, found that they could get better protection at lower cost by a combination of ADT Aero Automatic Fire Alarm and ADT Burglar Alarm Services.

The satisfaction with this type of protection expressed in Mr. Turner's endorsement reflects the opinion of hundreds of business executives throughout the country, who are saving money while obtaining greater security against fire, burglary, and other hazards.

Whether your premises are new or old, sprinklered or unsprinklered, the appropriate ADT Fire Alarm Service will detect fire and summon the fire department *automatically*. To guard against burglary or intrusion, ADT Burglar Alarm Service detects the attack and *automatically* notifies police or other protective forces. ADT Heating and Industrial Process Supervisory Service maintains a constant *automatic* check on heating plants and certain manufacturing operations to detect and report abnormal conditions.

ADT protects, electrically, many billions of dollars' worth of tangible and intangible assets owned by 56,000 subscribers in 1,600 communities. An ADT specialist will show you how combinations of engineered services can protect *your* property.

Call our Commercial Department if we are listed in your phone book; or write to our Executive Offices.

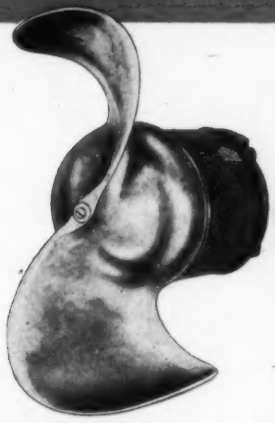
ADT

Controlled Companies of
AMERICAN DISTRICT TELEGRAPH COMPANY
A NATIONWIDE ORGANIZATION
Executive Offices
155 Sixth Avenue, New York 13, N. Y.

# Super Vacuum ..... THE ANSWER TO YOUR SMOKE EJECTION PROBLEMS

● REVOLUTIONARY NEW PRINCIPLE INCREASES FIRE FIGHTING EFFICIENCY!

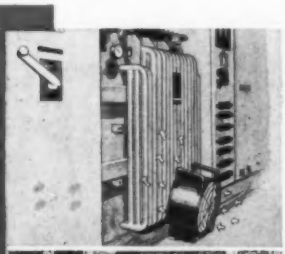
● The Super Vacuum Smoke ejector is a powerful portable fan unit designed especially for fire departments. This design is a new and revolutionary principle in moving air. Several thousand Super Vacuum Smoke ejectors are in use throughout the United States and Canada. Controlled ventilation is new and very necessary in fire fighting. Years of service and satisfied users are your best guarantee for any merchandise.



THE HEART OF THE SUPER VACUUM

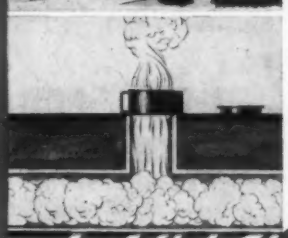
● The secret of Super Vacuum is the patented fan blade. Conventional fans chop the air and push it back. Whereas the Super Vacuum fan blade is a perfect spiral air screw which creates a partial vacuum, suction is created over the entire face of the blade and the air or smoke is discharged in a high velocity spiral. There are no dead spots—that is why Super Vacuum outperforms other fans twice its size.

## TYPICAL USES

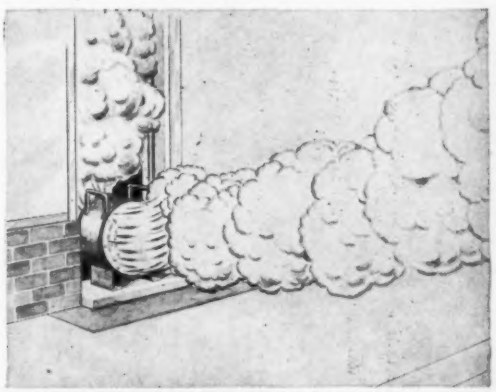


● Super Vacuum ejectors are often used by fire departments in emergencies to cool generators, pumps and motors. The strong discharge of air quickly reduces the temperature to a safe level.

● Fresh air can be forced into a building with or without a deodorant. By applying deodorant to a pad and attaching it to the intake face of the Super Vacuum fan, air is pulled through this pad and forced throughout the building. Smoke odors are dissipated and soot is settled.



● Poisonous or explosive gases can be effectively removed from sewers, basements, tunnels and mine shafts with the Super Vacuum Fans. They can be used in any position horizontal or vertical.



● Smoke ejection is a major problem at most fires. Super Vacuum does it faster, cheaper and more efficiently than any similar device on the market. As a Nationally known Fire Chief said recently, "Smoke ejectors are as necessary as fire hose in fighting fires."

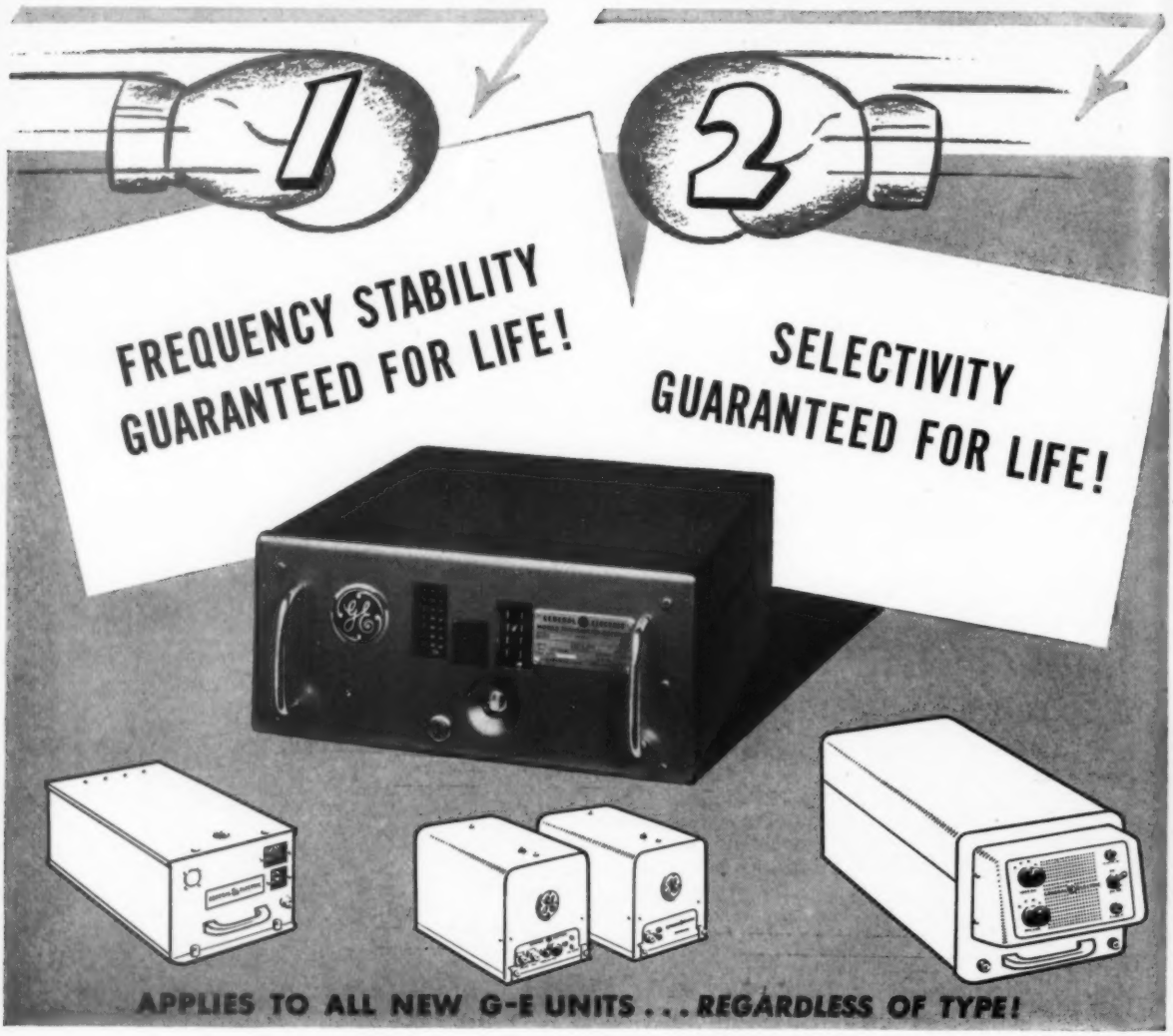
Write for Additional Information or Contact Your Local Fire Equipment Dealer

MANUFACTURED EXCLUSIVELY BY

Super Vacuum MANUFACTURING CO.

319 East 17th Avenue • Denver 3, Colorado

# GIVE YOUR 2-WAY RADIO SYSTEM


1
2
FREQUENCY STABILITY GUARANTEED FOR LIFE!
SELECTIVITY GUARANTEED FOR LIFE!
APPLIES TO ALL NEW G-E UNITS . . . REGARDLESS OF TYPE!

2-WAY MOBILE RADIO

## AN INVITATION TO . . .

see the 450 mc unit—a star in the G-E line to be shown at the IAFC convention . . . and the star performer of its class wherever it's used.

## WIN A DALMATIAN

When you register at the G-E *booth* or *hospitality room* you put yourself in the running to win a Dalmatian mascot. Don't miss seeing the pups . . . or the G-E 450 mc unit!

*Progress Is Our Most Important Product*

GENERAL ELECTRIC

# WITH BOARDMAN-BUILT TANKERS YOU'RE *Ready*

Yes . . . BOARDMAN-Built fire fighters are engineered and constructed for complete and long-lasting dependability, even in the toughest emergencies. There's a model for your department, whether urban or rural. The mobile rural tanker above fights running grass fires with the truck in motion, in addition to routine blazes. The famous Waterous pump amidship delivers 200 GPM at 150 lbs. pressure from draft. Like the rugged BOARDMAN-Built pumpers, it is available on any commercial chassis for maximum economy.

★ **MODEL 200-TD**
**BOARDMAN TANKER**

**Write TODAY for details and specifications on BOARDMAN-Built fire fighters to meet your needs.**

**Dealer territories available in some states—write for information.**

**THE BOARDMAN CO.**
1409 S.W. 11th St. • OKLAHOMA CITY, OKLAHOMA

# our New Catalog is yours

It contains a wonderful collection of the finest badges we have made in our 75 years. It's yours for the asking — every fire company — every equipment dealer should have it. Please write on your company stationery —

BRAXMAR

OUR DIAMOND JUBILEE CATALOG

BADGES

THE C. G. BRAXMAR ... NEW YORK 17, N. Y.

John O. Veit, President
John O. Veit, Jr., Sec. & Treas.

The C. G. BRAXMAR CO., INC.
216 East 45th St. New York 17, N. Y.

# HOWE DEFENDERS

**CUSTOM-BUILT PUMPERS**

## Chosen by 2 more Metropolitan Areas

Custom-built HOWE DEFENDER Pumpers, serving to protect so many communities from fire losses, have been chosen by two more progressive fire departments. Twin 750-gallon pumpers (upper photo) have been delivered to Dallas, Tex., and below them is a 1,000-gallon pumper built to order for Tampa, Fla. . . . The rugged 1,000-gallon HOWE DEFENDER at Tampa is powered by a 245 horsepower Continental engine. Its canopy-type cab can accommodate six men, two riding in front and four on the full-width rear seat, reached by catwalk down the middle of truck body. This cab is also available with side entrances to rear seat on either or both sides. Full depth running board compartments back of fenders and four additional compartments house supplies and equipment . . . Dallas' 750-gallon pumpers are built on the HOWE DEFENDER chassis with Waukesha 240 h.p. engines. They have open-cab construction with full chrome plated V-type windshields. These trucks are equipped with wet water and foam proportioners and all the most modern fire-fighting devices. WATEROUS Centrifugal Pumps are standard on all HOWE equipment . . . Both Tampa and Dallas trucks have all the extras supplied by HOWE, such as *automatic pump prime indicators, ball type valves throughout*, and *booster tanks with completely removable tops* for cleaning and servicing . . . for the latest and best, it's HOWE!

**HOWE**

*"dependable fire apparatus since 1872"*

HOWE

MEMBER FAM

(FIRE APPARATUS MANUFACTURERS ASSOCIATION)

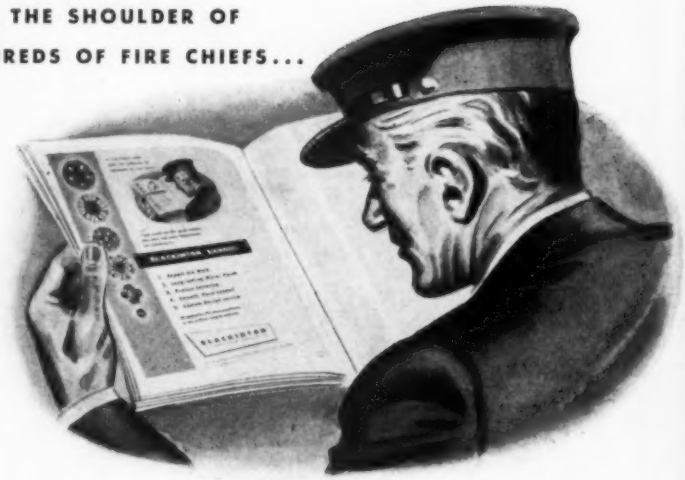
**FIRE APPARATUS COMPANY**

Dept. FE10, 1400 W. 22nd St., Anderson, Ind., U. S. A.

ILLUSTRATIONS SHOWN ¾ ACTUAL SIZE

Blackinton's popular Cap, Collar, and Lapel Insignia available in several finishes—all with colorful hard enamel centers. Ask your supplier to show you the complete line of BLACKINTON BADGES the next time he calls. Be sure to specify BLACKINTON BADGES.

IF YOU COULD LOOK
OVER THE SHOULDER OF
HUNDREDS OF FIRE CHIEFS...



—you would see five good reasons why more and more departments are switching to—

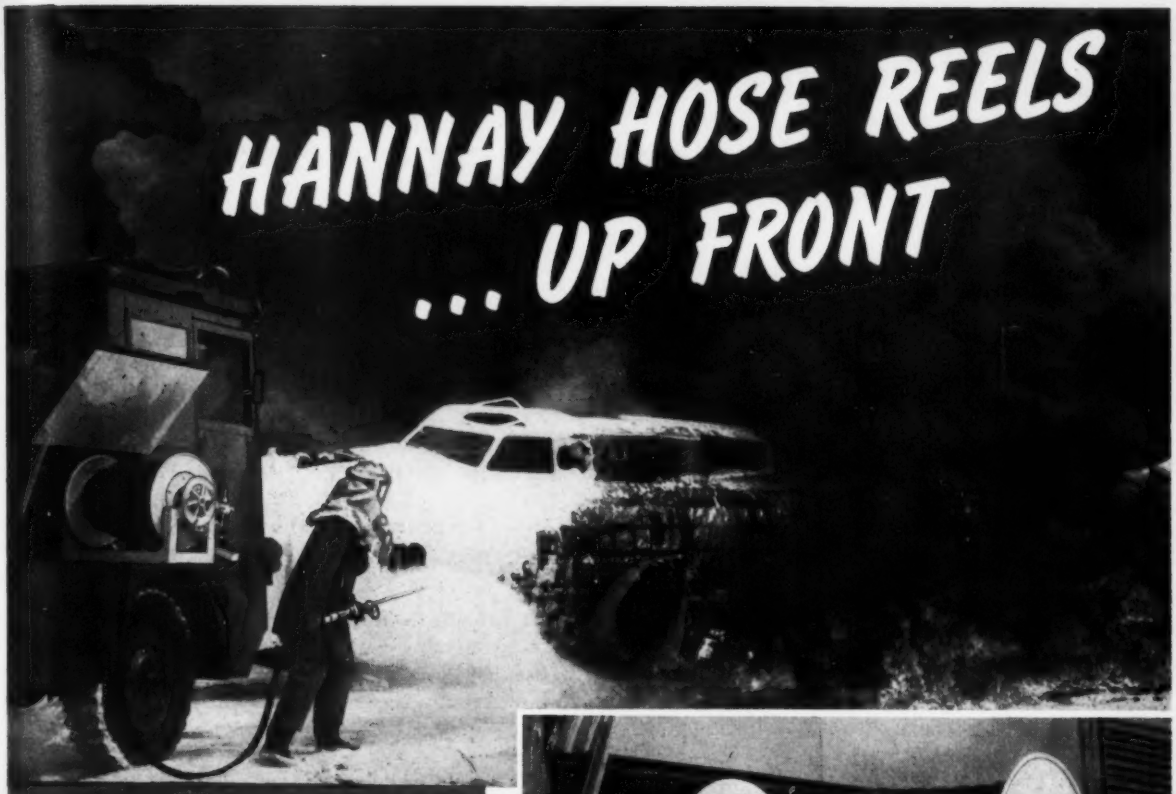
# BLACKINTON BADGES

1. *Expert Die Work*
2. *Long Lasting Mirror Finish*
3. *Precise Lettering*
4. *Smooth, Hard Enamel*
5. *Custom Design Service*

***All backed by 102 years experience in the uniform insignia business.***

**BLACKINTON**
V. H. BLACKINTON & CO., INC., ATTLEBORO FALLS, MASS.

# HANNAY HOSE REELS ... UP FRONT



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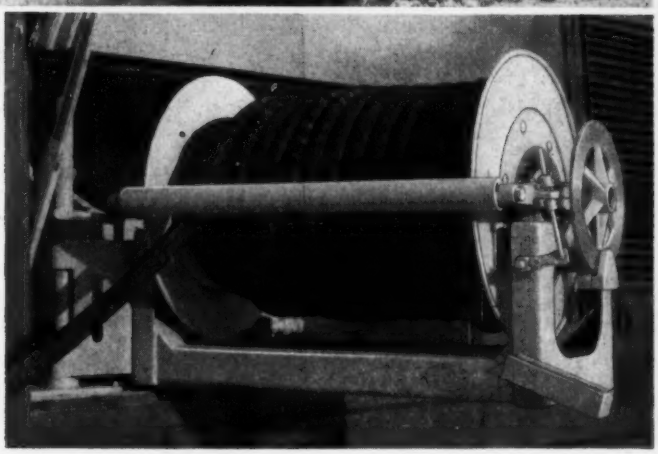


Check These Superior Advantages

## HANNAY Electric Drive HOSE REELS

- WATER RESISTANT
- VAPOR RESISTANT
- EXPLOSION - PROOF

★ Extra strong; withstand high pressures

★ Explosion-proof, heavy duty motor, sealed against fog, foam, fumes, water

★ Sealed push button control; no gears to shift; no clutch to engage

★ Safe rewind speed; always under control

...LOOK FOR THIS

Yes . . . in performance and service, Hannay Hose Reels are "up front". The dramatic illustration above shows Air Force Fire Fighters spraying foam from a new American LaFrance crash truck on burning aircraft. And the reel, of course, is a Hannay, specially designed for military service. When YOU need good hose reels, standard or special performance, remember HANNAY. . . . built to do a BETTER job, in fire-fighting, in industry, in national defense.

HANNAY
REG. U.S. PAT. OFF.
HOSE REELS
CLIFFORD B. HANNAY & SON, INC.
WESTERLO, NEW YORK

© 1952 C.B.H. & S. Inc.

MANUFACTURERS OF MANUAL AND POWER OPERATED HOSE REELS FOR EVERY PURPOSE

# specialists AT FIRE-FIGHTING

**When you choose** an INTERNATIONAL fire truck chassis, you pick a partner who's a *specialist* at the job.

INTERNATIONAL fire truck chassis offer features that mean extra efficiency, extra stamina, extra dependability.

INTERNATIONALS provide high torque in the most favorable engine speed range for fast starts and quick acceleration—and for full pumping capacity at full pressure. Further, heavy-duty models offer such specialized features for utmost fire fighting efficiency as set back front axles and geometrically perfect steering to provide extra-easy maneuverability—plus 12-volt electrical system, extra-capacity brakes, extra-heavy springs.

The complete INTERNATIONAL fire truck chassis line includes 7 light, medium and heavy-duty models, with pumping capacities from 300 to 1,500 gpm—all built to assure long life, maximum performance and dependability, lowest operating and maintenance costs. Your INTERNATIONAL Dealer or Branch will be glad to supply details.

**INTERNATIONAL HARVESTER COMPANY • CHICAGO**

**INTERNATIONAL Model R-306** heavy-duty fire truck chassis with complete fire fighting equipment, including 1,250-gpm pump, 500-gallon water tank, ladders and hose. GVW rating, 30,000 lbs. Wheelbase, 169 inches. Engine, 266 hp, gasoline.

International Harvester Builds McCORMICK® Farm Equipment and FARMALL® Tractors...Motor Trucks...Industrial Power...Refrigerators and Freezers

*See the season's new TV hit, "The Halls of Ivy," with the Ronald Colmans, Tuesdays, CBS-TV, 8:30 p.m., EST, starting October 19th*

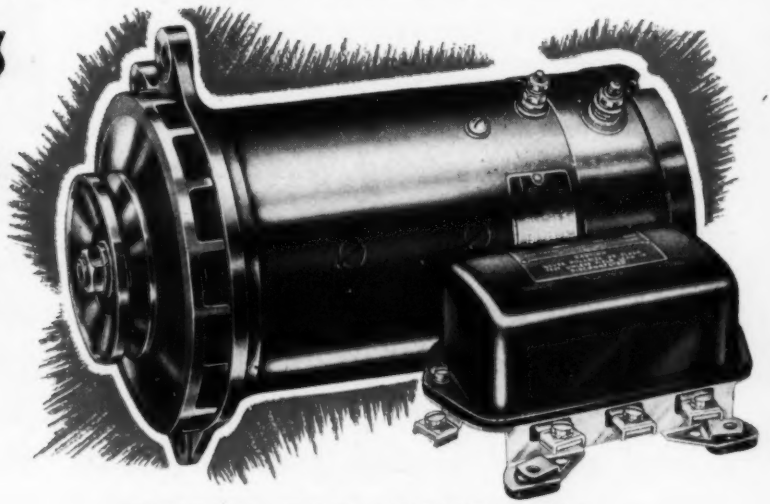
**INTERNATIONAL TRUCKS**

*"Standard of the Highway"*

# This 60 Amp. 2 Unit

## SPECIAL SERVICE GENERATOR SYSTEM

## Costs Less and Saves 5 Ways!



**ONLY TWO UNITS TO BUY**

**SIMPLE INSTALLATION**

**CUTS BATTERY EXPENSE**

**LOWERS MAINTENANCE EXPENSE**

**SAVES BELTS**

### DON'T PAY MORE FOR WHAT YOU DON'T NEED!

There's no need to pay the higher costs for complicated generator systems . . . no AC or DC system out-performs the AMERICAN BOSCH GRC Generator and RGR Regulator on a speed-load basis. Don't pay for more rated output than you need—save on installation expense.

The GRC Generator is engineered for today's severest operating conditions . . . has ample output to keep batteries fully charged despite extra electrical loads, 2-way radio or frequent idling. Compact 5" diameter and only two units make installation extremely simple. Pulleys are large enough to keep belt wear to a minimum. Famous RGR Regulator assures positive protection against run-away voltages.

Put the American Bosch GRC Generator to work on your vehicles and save money . . . keep your batteries UP, keep lost time, recharging nuisance and maintenance expense DOWN. Write for 20 page booklet 3595 for the complete story on the GRC. Models available in 6 volts 60 amperes, 12 volts 30 amperes and 12 volts 50 amperes. American Bosch, Springfield 7, Massachusetts.

# AMERICAN BOSCH

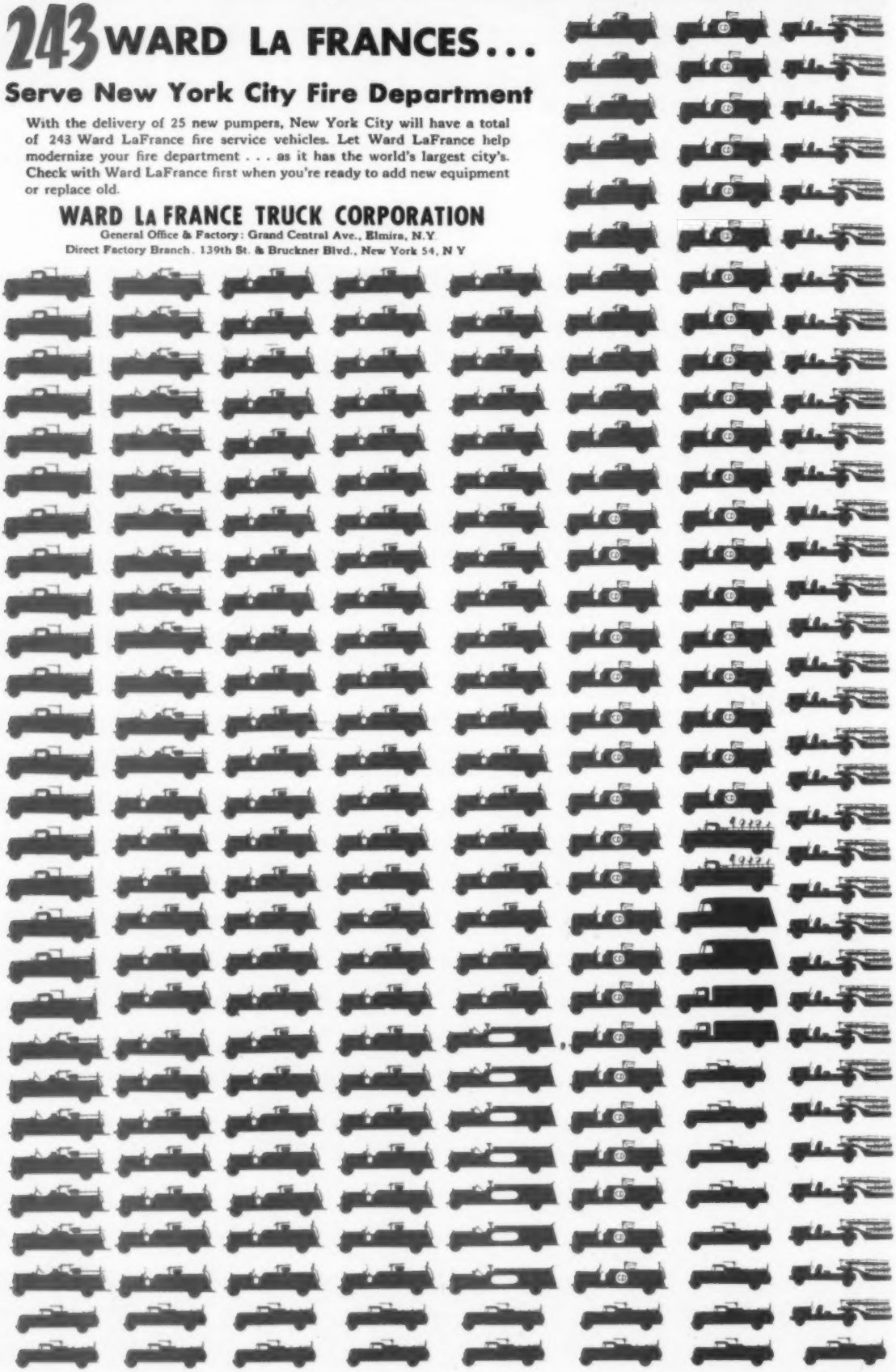
# 243 WARD LA FRANCES...

## Serve New York City Fire Department

With the delivery of 25 new pumpers, New York City will have a total of 243 Ward LaFrance fire service vehicles. Let Ward LaFrance help modernize your fire department . . . as it has the world's largest city's. Check with Ward LaFrance first when you're ready to add new equipment or replace old.

**WARD LA FRANCE TRUCK CORPORATION**

General Office & Factory: Grand Central Ave., Elmira, N.Y.
Direct Factory Branch. 139th St. & Bruckner Blvd., New York 54, N Y



# Ansul

## is the only dry chemical fire extinguisher backed by a five year warranty!

Here is proof of Ansul's superiority . . . *a five year equipment warranty*, the only one of its kind in the fire control industry.

For the buyer of fire equipment this important warranty means many *extra* years of trouble-free protection plus freedom from costly and frequent maintenance checks and repairs.

The special design and construction features that make this warranty possible provide not only dependable protection but also *fast*, *effective* fire control. Ansul's *weather-tight* construction keeps out moisture and resists corrosion. *Patented nozzles* deliver the right kind of stream for your fire protection problem. The *sealed pressure cartridge* puts Ansul's "Plus Fifty" dry chemical to work immediately—no delay or lag. And finally *rugged construction* makes it possible for Ansul equipment to give peak performance under the toughest operating conditions.

**HERE IS THE BIG TRAINING AND SERVICE PLUS OFFERED ONLY BY ANSUL!**
*Available without cost to all Ansul users.*

Training for your personnel at your plant by Ansul specialists.

Customer training school at Marinette for your key safety personnel.

Visual aids on fire control for your safety meetings and other training.

In-plant survey to scientifically determine your fire protection needs.

Call the Ansul Man!

ANSUL

Get in touch with your local Ansul man through the "yellow pages" or write ANSUL CHEMICAL COMPANY, Fire Equipment Div., Dept. F-13, Marinette, Wisconsin.

# EAST

*Standard of Quality for*

## *More than just a* Del
## a DELUGE SY

All g
oper
posit
truck
yard

EVERY product bearing our name is guaranteed to be the finest of its kind that can be made—guaranteed to help any fire department perform better through more efficient streams—the best you have ever experienced!

WE will gladly ship to anyone, in any part of the U.S.—any Eastman product and, if after your tests you find it does not come up to our claims—let us know and hold subject to our order. Briefly—our products live up to all claimed for them or you don't keep them. Over 100 years of doing business by this golden rule has resulted in satisfied users the world over.

***ASK YOUR DEALER FOR DEMONSTRATION***

**SAMUEL EASTMAN COMPANY, INC.** OF

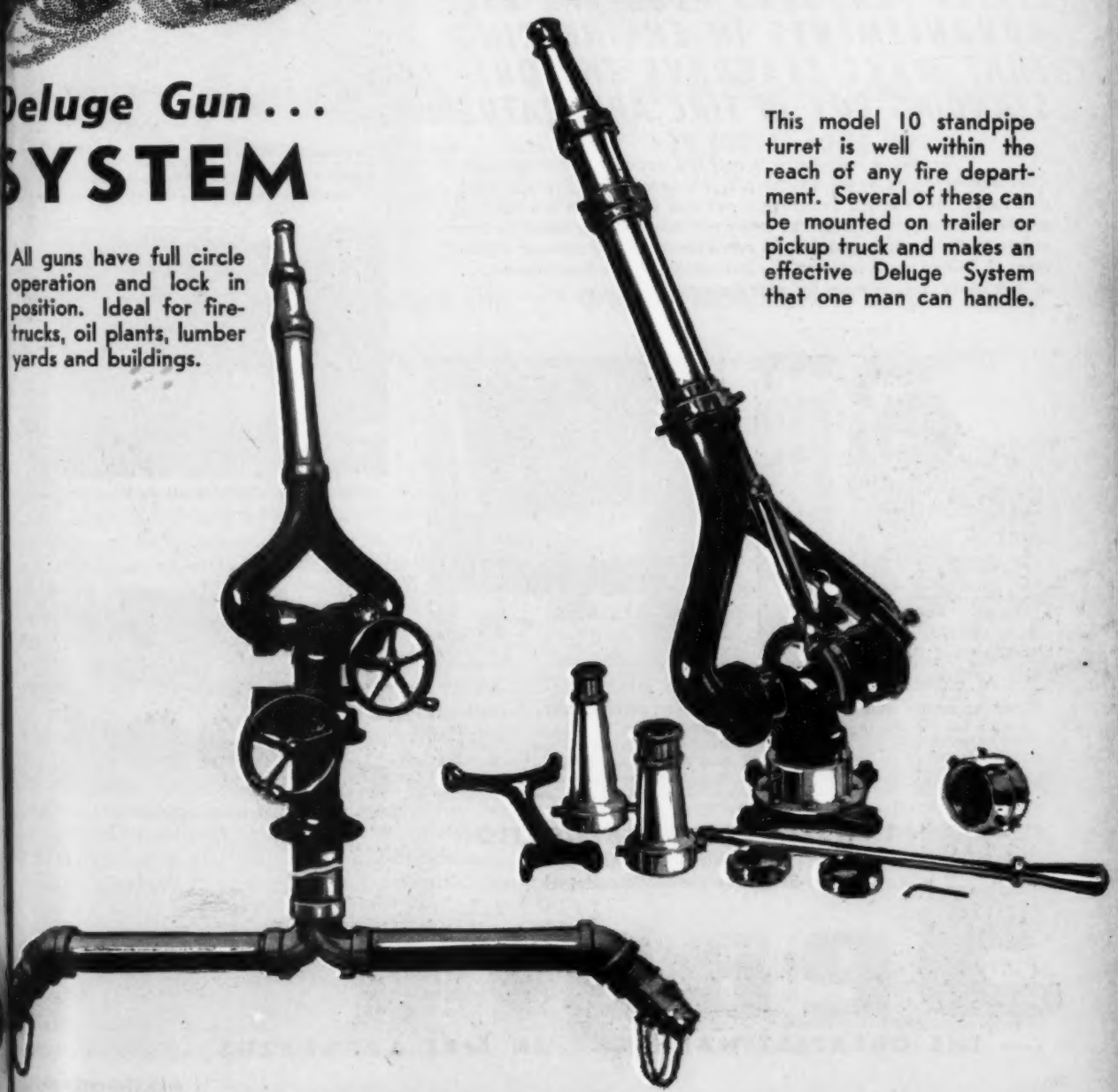
# MAN

*for Over 100 Years*

## a Deluge Gun . . .
## E SYSTEM

All guns have full circle operation and lock in position. Ideal for fire-trucks, oil plants, lumber yards and buildings.

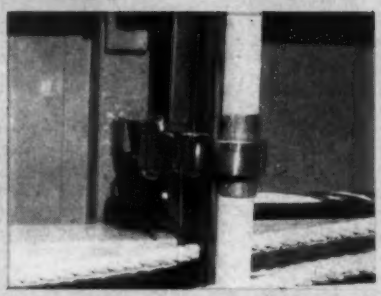
This model 10 standpipe turret is well within the reach of any fire department. Several of these can be mounted on trailer or pickup truck and makes an effective Deluge System that one man can handle.



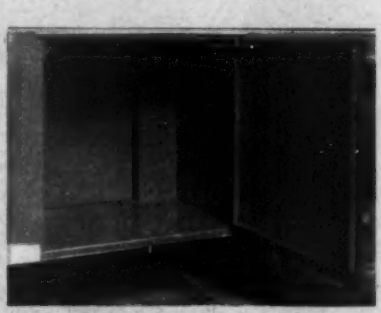
INC. CONCORD, NEW HAMPSHIRE

# IT'S THE MANY LITTLE FEATURES PLUS THE BIG ADVANCEMENTS IN ENGINEERING THAT MAKE SEAGRAVE THE OUTSTANDING BUY IN FIRE APPARATUS

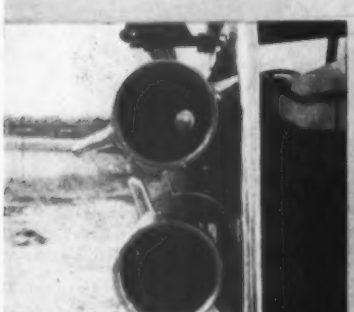
Seagrave manufactures only fire apparatus and naturally, after seventy-three years on the job, we know what firemen want and need. That's why a Seagrave is not only an efficient fire fighting machine but also why it has so many refinements in features for the safety of the firemen and for the convenient storage of their equipment. A few of these features are illustrated in this advertisement . . . In every way you get more for your money in Seagrave.



**IMPROVED LADDER LOCKS** — Hold ladders rigidly in place. Ladders instantly removed by flip of locking lever.

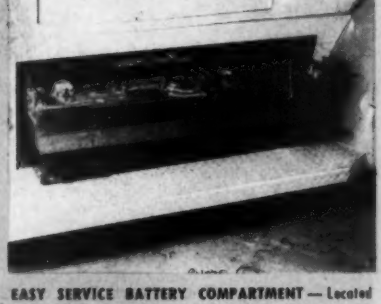


**LARGE STORAGE COMPARTMENTS** for extra gear, lighting generator and portable pump.



**IMPROVED SUCTION HOSE CLAMPS** — Hold hose tightly in place. A flip of the finger releases the hose.

**IMPROVED DRIVER'S SEAT** — Comfortable, separate seat that adjusts to fit the size of the driver. Note also the easy operating, positive pump shift lever. Can be operated from seat or from pump operator's position.



**EASY SERVICE BATTERY COMPARTMENT** — Located just above running board. Battery tray slides out for ease in servicing batteries.

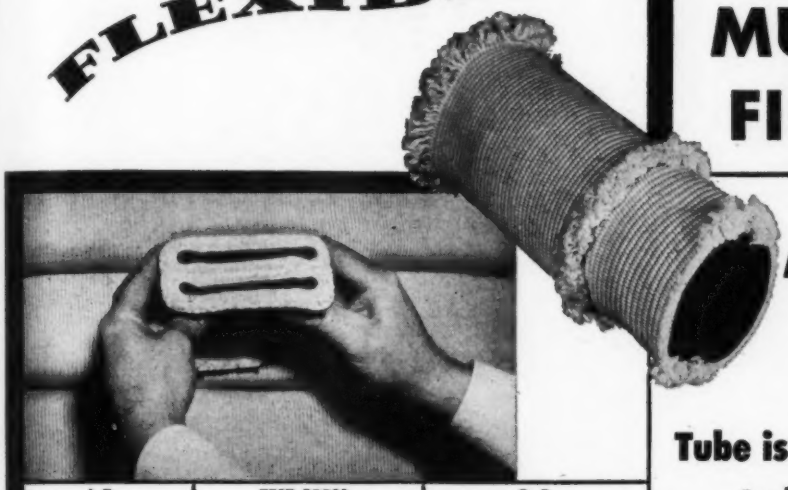
**THE SEAGRAVE CORPORATION**
**Columbus, Ohio**
**Bickle-Seagrave Ltd. — Woodstock, Ont.**

# Seagrave

**THE GREATEST NAME IN FIRE APPARATUS**

# FLEXIBLE

# BI-ROLL MUNICIPAL FIRE HOSE



| I. D. IN. | TEST PRESS. LBS./SQ. IN. | O. D. FOR COUPLINGS |
|---|---|---|
| 1½ | 400 | 2" |
| 2½ | 400 | 3 1/16" |

**All Yarn in Bi-Roll Jacket is Antiseptically Treated.**

**Tube is Oxygen-Bomb Tested to Insure Long Aging**

## Special Construction Provides Longer Life • • • Greater Flexibility • • • Greater Safety

## Flat Fold Enables You to Store a Greater Amount of Footage in Truck Beds

### BI-ROLL JACKET FEATURES

The Bi-Roll Jacket is circular woven in an atmospherically controlled room to insure balanced weaving. Long staple domestic cotton of standard length cords is used for inner and outer jacket. These cords are practically identical in weight which insures balanced construction. This means that twisting, writhing and elongation are minimized when the hose is under pressure.

The finished jacket is carefully inspected to insure freedom from knots, lumps and other imperfections. It can be treated with the Hewitt-Robins special wax and gum impregnation process which cuts down the jacket's water absorption factor—makes it freeze resistant and provides 100% resistance to mildew and rot. This wax and gum treatment gives the jacket a rich, golden hue and does not impair the flexible nature of the hose. Treated or untreated, Bi-Roll remains soft, strong and highly flexible.

### BI-ROLL TUBE FEATURES

The tube in Bi-Roll Hose is made of properly vulcanized plantation rubber possessing slow aging, non-cracking, non-blooming, non-acid forming qualities, oxygen bomb-tested to insure long aging. Tube interior is extra-smooth and free of pinholes and pitting. This provides a friction-free passage for rapid flow of water through the hose.

The tube is not vulcanized to the jacket at point-of-fold. This construction helps to prevent cracking when hose is in storage . . . allows greater overall flexibility . . . permits a flatter fold—an important feature which makes it possible to store a greater amount of Bi-Roll in truck beds. This means you can speed more footage of hose to the fire scene with your present equipment . . . handle it easier and with greater safety. You can readily appreciate the additional fire fighting efficiency made possible by these features.

**HEWITT HR ROBINS**

Executive Offices Stamford, Connecticut

DOMESTIC DIVISIONS: Hewitt Rubber • Robins Conveyors • Robins Engineers • Restfoam • EXPORT DEPARTMENT: New York City

FOREIGN SUBSIDIARIES: Hewitt-Robins (Canada) Ltd., Montreal • Hewitt-Robins Internationale, Paris, France • Robins Conveyors (S. A.) Ltd., Johannesburg

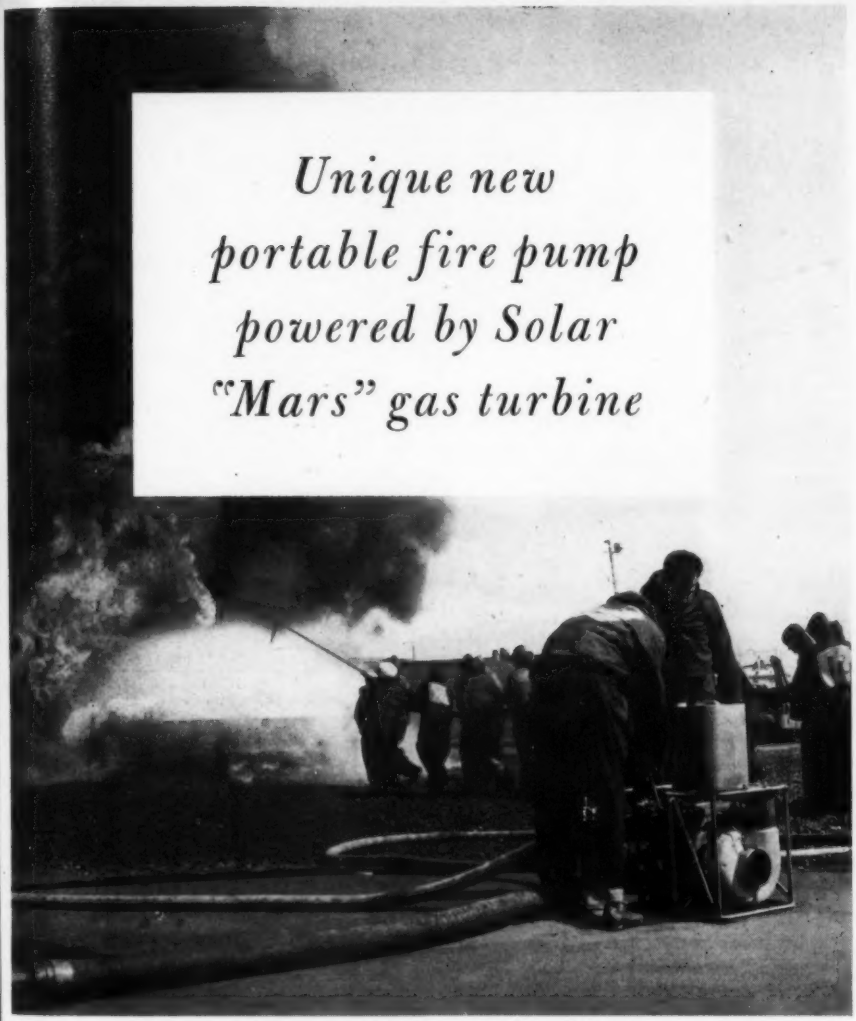
# RIGHT AT HOME!

THIS attractive Custom Challenger is right at home in Sharpsville. Equipped with a 750-gallon three stage pump, capable of delivering volume, high pressure fog, foam and "wet" water, this prize winning apparatus protects the home of all Sharpsville Challengers.

When the Sharpsville Volunteer Fire Department decided to give the town a modern fire truck, it was only natural for them to choose a Challenger. They know its painstaking workmanship and quality material. They have seen the careful attention to detail and rugged design going into Sharpsville apparatus delivered to other Departments. You, too, can share their confidence. Tell us your requirements and we will help design a Challenger for your community.

**Sharpsville**
**STEEL FABRICATORS, Inc.**
Established 1860
Incorporated 1907
Sharpsville, Pa.
Builders of Service, Crash and Ladder Trucks • Volume and High Pressure Pumpers
Squad and Emergency Cars • Storage Tanks
Write!

# *Unique new portable fire pump powered by Solar "Mars" gas turbine*



*Solar pump on test at Navy Firefighting School*

**A UNIQUE NEW** portable pump for fire fighting has been developed by Solar for the U.S. Navy Bureau of Ships. It is powered by the Solar "Mars" gas turbine engine, the sensational engine that drives the vital auxiliary generator in the Douglas "Globemaster," world's largest cargo plane. The "Mars" engine weighs less than 100 pounds, is smaller than a two-foot cube, and produces 50 hp using gasoline, diesel oil or kerosene.

*Solar "Mars" Gas Turbine*

Powered by this engine, the pump delivers 500 gallons per minute at a pressure of 100 pounds per square inch with a 16 foot suction lift. Dry weight, excluding gas tanks and hoses, is only 175 pounds. The unit is hand started and ready for full load in 15 seconds. It can pump its own weight in water in 2.5 seconds.

Fire chiefs and those who know fires, both here and abroad, have tested this unit and given it their endorsement. It is not yet generally available because all current production of Solar gas turbines is going for military uses. However, production for commercial applications is expected in the near future.

**SOLAR** AIRCRAFT COMPANY — SAN DIEGO, DES MOINES

## This is What Solar Offers You

*Solar specializes in the manufacture of precision products from alloys and special metals for severe service. Solar's experience since 1927 is unduplicated in this field. Solar skills and facilities range from research, design and development through to mass production. Wherever heat, corrosion or difficult specifications are problems, Solar can help you solve them.*

**PLANTS.** *In San Diego (Photo above) and Des Moines. A total of 1,400,900 sq ft floor space. Approximately 5,000 employees. Annual sales over $65,000,000.*

**EQUIPMENT.** *Production equipment for all types of metal fabrication —forming, machining, welding, brazing, casting, coating. Extensive laboratory and testing equipment. Facilities for development, prototype, limited or mass production.*

**SERVICES.** *Research, design, development, tooling and production engineering staffs. Experienced with all alloy steels, stainless alloys, super alloys, and titanium and its alloys. Government source inspection and Solar quality control meet rigid aircraft and commercial standards.*

### CONTRACT PRODUCTION

*Current orders include aircraft engine and airframe parts, alloy castings, pneumatic ducting, atomic energy components. Customers include some of the most honored names among aircraft and industrial companies in the U.S. and Europe.*

### SPECIAL PRODUCTS

**Bellows.** *"Sola-Flex"® bellows and expansion joints in many designs from ½ in. up to the world's largest, 28 ft in diameter.*

**Gas Turbines.** *Solar "Mars" 50 hp engines for auxiliary generator sets, ground carts, portable fire pumps, Solar "Jupiter" 500 hp engines in variable and constant speed models.*

**Ceramic Coatings.** *"Solaramic"® is the Solar trade mark for a family of coatings that protects metals from heat, corrosion, galling and abrasion.*

**Controls.** *Complete control systems utilizing the new Solar "Microjet"® principle for control of gas turbines, jet engines and pneumatic devices.*

FURTHER INFORMATION

Your inquiry regarding any Solar service or facility will receive prompt attention. Address Solar Aircraft Company, Department A-33 San Diego 12, California.

**Pratt and Whitney,** division of United Aircraft Corporation, uses Rockwood-equipped fire truck to protect its private airport. FogFOAM here smothers test fire in seconds.

# Leading fire truck users rely on Rockwood for protection

Where dependability counts — in fire protection of airports, industries, refineries and municipalities — you will find Rockwood on the job.

Fire trucks, for instance, get the benefit of such famous Rockwood fire-fighting equipment as WaterFOG, FogFOAM, FOAM and WET — each designed to conquer different types of fires. By means of Turret Nozzles, these trucks discharge large volumes of FogFOAM, FOAM or WaterFOG. By means of Ground Sweep Nozzles, they fight flowing gasoline fires and protect firefighters and trucks at the same time. By means of Hand Lines, they control fires in hard-to-get-at areas.

Rockwood is a pioneer and leader in the development of many unusual ways of engineering water to cut fire losses. If you are not familiar with these different firefighting weapons, you will find it well worth your while to send for the free booklet, "15 Types of Fire Protection." Just write Rockwood Sprinkler Company, 270 Harlow Street, Worcester 5, Mass.

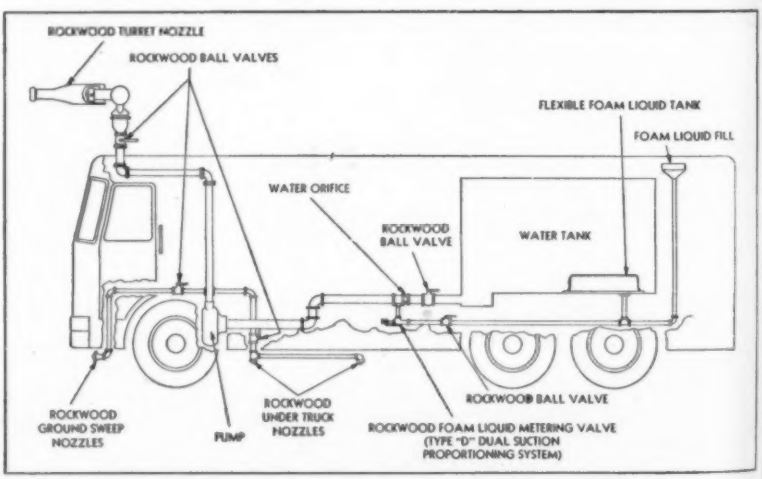
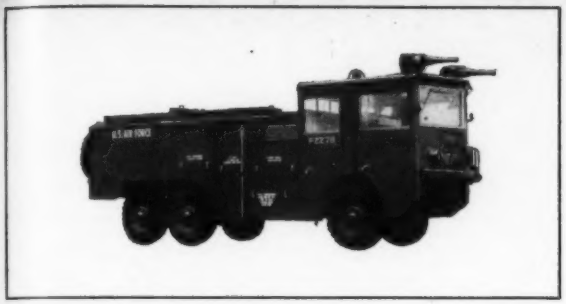



**Diagram Shows How** Rockwood FOAM is automatically mixed with water to form Rockwood FogFOAM in a fire truck. Note Rockwood Foam Liquid Metering Valve (Type "D" Dual Suction Proportioning System).

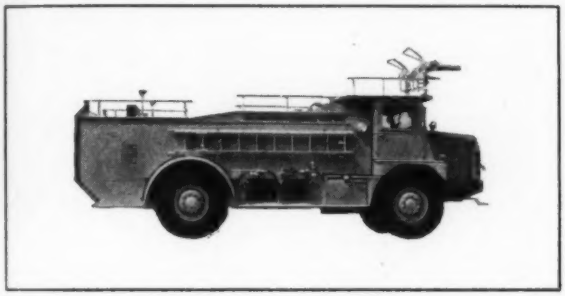
## ROCKWOOD SPRINKLER COMPANY

*Engineers Water . . . to Cut Fire Losses*



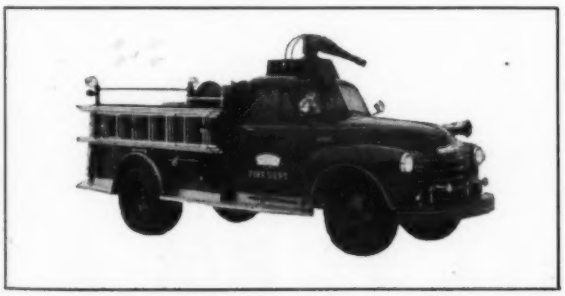
**This U. S. Air Force** Rockwood-equipped fire truck is the largest of its kind. Can be operated with pistol grip hydraulic controls from within cab, manual remote control from within cab or direct manual control from top of cab. Equipped with the latest types Rockwood combination FogFOAM Turrets and Nozzles and a Rockwood Automatic FOAM Proportioning System. Built by American LaFrance Foamite Corporation.

**The Royal Canadian Navy** uses this fire truck with a complete Rockwood FogFOAM system. The system consists of two manually operated combination FogFOAM Turrets and Nozzles, three Group Sweep Nozzles, two Under Truck Nozzles, two Hand Line Nozzles and an Automatic FOAM Proportioning System. Truck was built by Bickle Seagrave on a Walter Motor Company chassis.

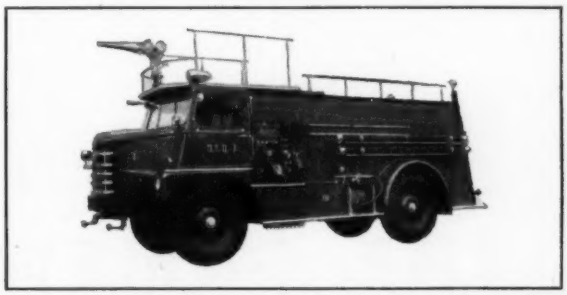


**Washington, D. C., National Airport** handles one of the heaviest traffic loads in the United States. It is protected by these large fire trucks, equipped with Rockwood FogFOAM systems and built by Maxim Motors Company on a Walter Chassis.

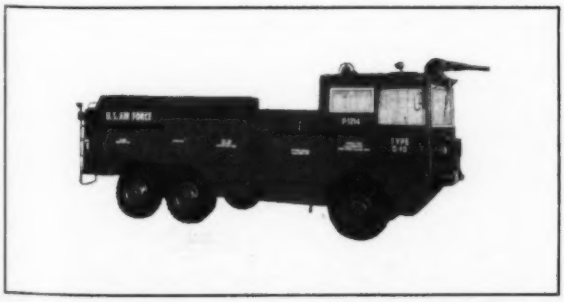
**Glenn L. Martin Airport** uses this Rockwood-equipped fire truck for efficient fire protection. The FogFOAM system in the truck was designed and manufactured by Rockwood. Truck was built by Maxim Motors Company on Walter Chassis.



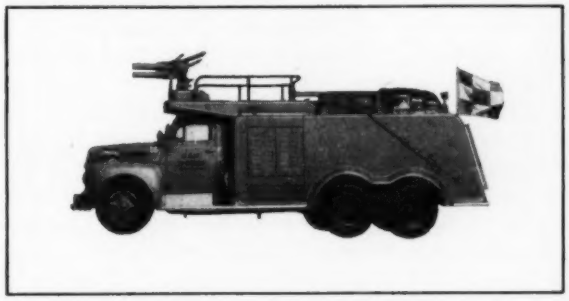
**Detroit Transmission Division,** General Motors Corporation, reports "More fire fighting punch than any other small truck we have seen." It automatically discharges Rockwood FogFOAM or WET. Built by Young Fire Equipment Corp. on a G. M. chassis.



**Dayton, Ohio, Airport** relies on this Rockwood-equipped fire truck for protection against fire. It contains a complete Rockwood FogFOAM system. Truck was built by Maxim Motor Company with chassis by Walter Motor Company.



**U. S. Air Force** uses hundreds of Type 0-10 fire trucks equipped with complete Rockwood FogFOAM systems. These systems can be operated hydraulically or manually from within the cab or manually from the roof of the cab. They operate in temperatures as low as —60°F. Trucks are built by Marmon-Herrington Company.

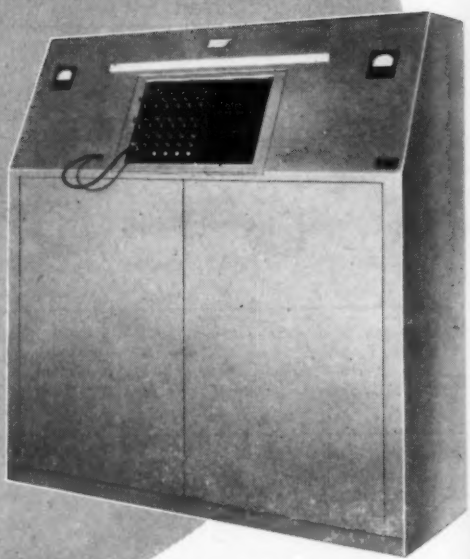


**McDonnell Aircraft Company** in St. Louis, Missouri, protects its flying operations with this fire truck equipped with a Rockwood FogFOAM System. Note double Turret Nozzles, Ground Sweep Nozzles and Hand Line Nozzles. McDonnell is engaged in aircraft production for the U. S. Navy. Truck was built by Robinson Fire Truck Division.

# NOW THE FIRST "Packaged" FIRE ALARM SYSTEM

PREVIOUS EQUIPMENT REQUIRED THIS MUCH SPACE

NEW GAMEWELL FORM 4
USES ABOUT THIS MUCH SPACE



For the small community, or for decentralized big city Fire Alarm Systems, The Gamewell Form 4 fills today's needs.

# THE GAMEWELL FORM 4

*In 20% to 30% of the space previously used,* you can install this complete control unit, including batteries.

And the Gamewell Form 4 Automatic Control System enables you to put saved dollars into street fire alarm boxes for public safety and reduced fire losses.

This "packaged" Fire Alarm Control Cabinet is quickly and easily installed. It contains *all* the devices needed for a complete central office setup. It *automatically* repeats box alarms and warns if a circuit is broken. It has a reserve power supply for emergencies and meets NBFU Standards.

**FEATURES**

- **Requires only 20% to 30% of space previously needed for complete central office equipment including batteries.**
- **Quickly and easily installed.**
- **Reserve power for emergencies.**
- **Available in any capacity required to 10 circuits. Readily expanded to meet growing needs.**
- **Automatically repeats box alarms; warns if a circuit is broken.**

Bulletin 3A gives a complete description of the Gamewell Form 4 Control Cabinet. Write for a copy today. No obligation.

**THE GAMEWELL COMPANY**
NEWTON UPPER FALLS 64, MASS.

GAMEWELL

THE BOX IS POSITIVE
**Reduces Human Error**

FIRE ENGINEERING

OCTOBER, 1954 VOL. 107, NO. 10

# With the Editor

**A Poor Press** Does the fire service have a poor press? A study of press, radio and television over the past decade or two indicates that it does.

A "poor press," it might be explained, is one that in the vernacular of the entertainment and public relations worlds may be described as "lacking good will building and favorable publicity."

This may seem strange to the man in the street who reads about fires in nearly every paper he picks up, and who hears about them on radio and sees them on television. But merely printing or broadcasting stories about fires is by no means in itself good press-agentry for the fire service. In fact, it may be just the opposite, leading folks to ask "where was the fire department?"

It is true, many of these accounts refer to the "heroic, brave and intrepid" fire fighters, and sometimes list the casualties among them. But it usually takes a mighty big fire, and a lot of casualties, before the firemen make the headlines. All-too-often a "stinking" worker that has laid low entire companies of firemen, never gets into type or on the air, and if it does, it's the fire, the smoke, the crowds that get the play, not the men in the smudge or laid out on the sidewalk.

As every fire fighter knows, it's the spectacular blaze that roars through the roof to light up the sky that brings the crowds and the reporters, and gets the headlines. The dirty, smoky, stubborn basement smudge seldom offers a thrill to laymen and news reporters.

When you ponder it, maybe the fire service should take a leaf from big business, and get itself some good press agents—or to give them their highbrow name, "public relations counsellors." Fire protection and prevention *is* big business *in anybody's language*. It has a "product" to sell—the saving of lives and property! It has a tremendous "plant" with "branches" in every city and town and village with over a million workers toiling for the good of humanity. It deals with the most dramatic subject any press agent could hope for: the saving of human lives from the most dreadful of all deaths, that by fire. If there ever was good material for human interest news stories and broadcasts, it is right here in this vast, pulsating "business." And yet, when those who administer and operate this "big business" want, and need, the public's support on projects designed to improve and further this monumental enterprise, it is difficult, if not impossible, to win it.

Perhaps we of the fire service are somewhat to blame for this situation. As fire officers, we don't profess to be public relations counsellors. We're too busy turning out a good "product" of fire suppression to take the time to attempt to learn the rudiments of good will building. Instead of poring over Dale Carnegie's *"How to Make Friends and Influence People,"* we've got about all we can do to study the modern textbooks on *how to extinguish and prevent fires.* In short, we just don't cultivate those denizens of the "Fourth Estate" as we should.

What can be done about it? Well, one answer is to go out and get the aid of these specialists who can sell the fire service to the public. If we can't employ them on a full-time basis, maybe we can enlist their cooperation, counsel and advice as a matter of community service and betterment.

In every municipality served by paid or volunteer firemen, there are some men whose business it is to sell products or ideas, who know promotion, and the media through which the public learns about products, and ideas, and through which the public must depend for its knowledge of the fire service. Many of these men are public spirited; a few of them are ardent followers of the fire fighting business, i.e., buffs, fans, sparks, or whatever they may be termed locally.

Singly, or in groups, with or without remuneration, they may be quite willing to help the fire chief gain that essential, a "good press."

Fred Shepard

# "Operation Firestop" Tests Encourage Fire Researchers

By CLIFF DEKTAR

HOPE that a national fire research program may be formed has been voiced by Dr. Keith Arnold of the University of California School of Forestry and Manager of "Operation Firestop."

" 'Firestop' has gone much better than we anticipated," Dr. Arnold stated. "Actually, we have done quite well considering this is an exploratory program —it is a complete success in this way because it is developing leads and showing us what directions to go.

"Considering that we are short of research-trained personnel, I think we have done well because, after all, this is a short term project."

"Firestop" is a one-year operational study designed to explore certain aspects of mass-fire buildup and behavior and to provide the fire services with some new aids to mass-fire prevention and control.

It is a cooperative program of those agencies in California which are interested in the control of large fires. Cooperating in the operational study, to explore certain aspects of mass-fire buildup and behavior and to develop and demonstrate some new attack methods, are educational and research groups as well as primarily fire suppression agencies.

This study is being conducted and coordinated through the University of California School of Forestry with technical direction by the California Forest and Range Experiment Station and the U.S. Forest Service Equipment Development Center, Arcadia.

Military representatives are also participating in the program.

Fire-fighting agencies participating include the California Division of Forestry, U. S. Forest Service, Los Angeles County Fire Department, Los Angeles City Fire Department, and California and Federal Civil Defense Groups.

Dr. Arnold is managing the entire program, while Len R. Chatten of the Division of Forestry is assistant manager and executive director of the projcet.

Members of the executive committee include: W. D. Winters, California Division of Forestry; M. M. Nelson, U. S. Forest Service; Keith E. Klinger, Chief Engineer, L. A. County Fire Department; F. H. Rothermel, Deputy Chief, L. A. City Fire Department; H. P. Bowhay, Chief, California Civil Defense Fire Forces; J. H. McLendon, U. S. Civil Defense; J. Yockers, California State Fire Marshal; and W. Taylor, Pacific Coast-Intermountain Association of Fire Chiefs.

Most of the agencies involved have contributed equipment, facilities, and personnel to the project.

"Although the tests are being made with brush and grass, the results of techniques may be of equal importance to some civil defense functions as well as urban fire fighting," Dr. Arnold pointed out.

"Over 95% of all fires in the wildland areas of the State have been handled and controlled satisfactorily with equipment and techniques which have been developed through many years of field experience. A small portion, however, develop into large fires with which existing equipment cannot cope.

L. A. County F. D. Photo

**Dr. Keith Arnold (left), and Chief Keith E. Klinger, L. A. County Fire Department, discuss "Operation Firestop" at Camp Pendleton.**

"These areas of mass fire can rapidly devastate thousands of acres of valuable timber and watershed and cause many millions of dollars of damage annually."

"The fire problem is still the greatest one facing urban or wild life administrators, including Civilian Defense.

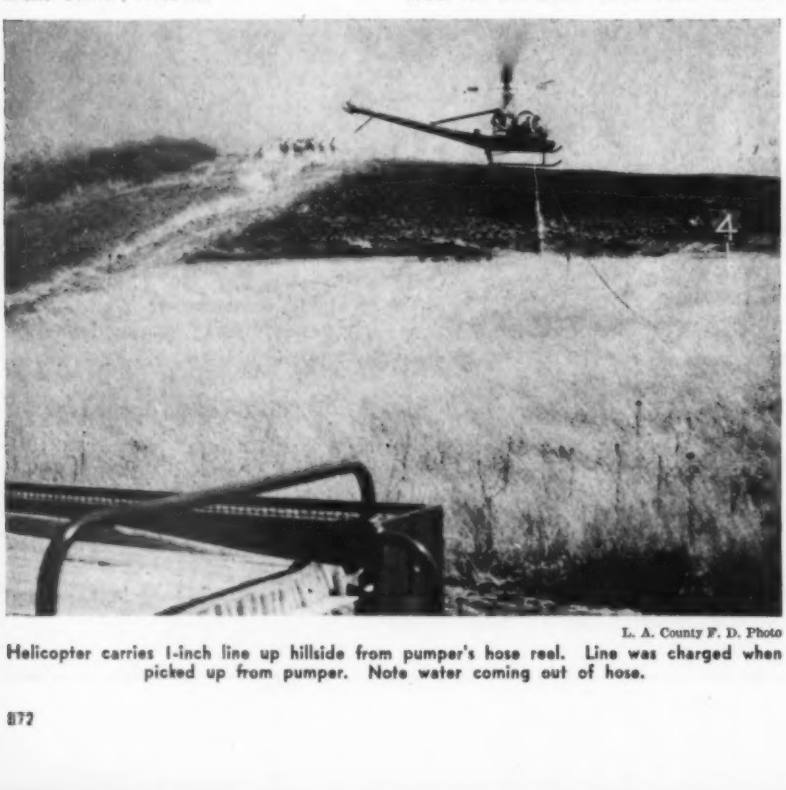
"The problem is so great that we must work on it now and not in one, two, or three years. We badly need a permanent-type national research institution for the fire services!"

First field tests for "Firestop" began February 1, at the huge Marine base at Camp Pendleton near Oceanside south of Los Angeles. Weather surveys—under supervision of the U. S. Weather Bureau—and the condition of the fuel, both live and dead, has been carefully recorded for the areas to be burned. Moisture content studies began February 1 at the test sites in the desolate back-country of the San Onofre Area of the base in San Diego County.

Actual field burning began July 1. Some 50 men have been engaged in exhaustive surveys and tests, some of the tests being held in country that is virtually inaccessible. Many hundreds of acres of brush of all types have been burned under numerous controlled situations.

Personnel from the various research units and educational institutions involved have recorded much data and accumulated many scientific readings.

Most of the work has been quietly carried out on parts of the 22,000 acres



L. A. County F. D. Photo

**Helicopter carries 1-inch line up hillside from pumper's hose reel. Line was charged when picked up from pumper. Note water coming out of hose.**

alloted to the operation by the Marine Corps.

"We have done some burning in areas that are virtually inaccessible," commented Jim Mace, Deputy State Forester. "Why, some of our automobiles won't climb the 24% grades in the back country, and we must use jeeps."

The first and only major public demonstration of "Firestop" was held August 26, in conjunction with the meeting of the Pacific Coast-Intermountain Association of Fire Chiefs at Long Beach, 60 miles to the north.

The representatives from the chiefs' group were loaded into special busses and moved in a convoy to the test site.

More than 400 persons from the convention, press, newsreel, and military groups, gathered on a dusty slope across from one of the test areas to watch some of the more spectacular experiments.

Each viewer was given an explanatory booklet with space for the notation of certain information in each experiment. A helicopter flew over the group and demonstrated a new field public address system provided by the Pacific Telephone and Telegraph Company.

Dr. Arnold welcomed the group, pointing out that they were not just witnessing a demonstration, but actual tests.

"We have not tried some of these experiments before," he said. "We are hopeful that they will work, but please do not be disappointed if they do not."

Then Assistant Manager Chatten took over and gave a few pointers on the background of the tests which had been previously held and the explanation of what lay ahead.

"All tests today are part of the 'Firestop' study program and are conducted with a background of as much known data on factors influencing the behavior of fire as possible. On some of these, evaluations are relatively simple to make, but for others, new techniques, instruments, and methods must be found in order to measure them. The search for these is an important part of 'Firestop.'"

Mr. Chatten then gave weather information: "Temperature 75; wind velocity 5-11 miles per hour; wind N 80 W; relative humidity 45, fuel moisture, 8."

He continued telling the viewers:

"Watch for colored smoke which will indicate variety of wind direction resulting from canyon influence. A typical 'Firestop' wind tower with recording instruments and weather station can be seen above and to the right of the test plots. Engineers from U.C.L.A. will be making records of heat energy released during the fires."

First tests were to deal with fire retarding chemicals.

"A few of these chemicals are being tested here today on large scale fires for the first time. All of today's fires will be in grass. Similar testing currently is going on in light brush and heavy brush fields.

"It is already apparent that these chemicals can be used to advantage if they are correctly used. They ordinarily will not stop the head of a running fire, but seem to be effective on the flanks or for preparing backfire lines.

"Chemical No. 1 was tested as the first plot was fired. It did not hold the rush of flames too successfully.

"No. 2 seemed to be more effective, particularly on the flanks of the fire. However, this also could not hold the head of the blaze."

Next test was of several electrical ignition systems.

"We can lay some of these systems by helicopter," Chatten pointed out. "During this one in Plot 3 we will set off a number of fires at once. You can see this could be particularly valuable if a fire boss wanted an area fired out at a specific time along a set line."

In the left half of the plot, wire and fast fuse lines were laid in advance. The ignitors were spaced 15 feet apart and were fired simultaneously by an electric detonator. The large number of ignitions took place successfully as scheduled.

In the right half of the plot a single electrical ignition took place for the comparison of the speed at which the two fires build up and burn.

Naturally, the fire in the area with the numerous ignitions burned more fiercely and faster than the one in the other plot.

Several demonstrations of firing by grenades dropped from helicopters also successfully took place.

Chatten explained to the onlookers that some tests on the use of the blasts from helicopter rotors to spread a fire already had been made.

Then a light helicopter hovered over one of the small fires burning in the test area and demonstrated what a rotor blast could do.

"A rotor blast has an apparent effect on some objects and can scatter fire," Chatten stated. "From an altitude of 20 feet at forward speed, there is little effect. However, when the helicopter hovers over a fire, its fanning effect is much greater and can help scatter the fire or move it in the direction desired in backfiring operations. You can see that there are situations where this could be valuable."

Next experiments also were with a helicopter and were perhaps among the most interesting and eventually may have the most value of any of the "Firestop" tests.

Cal Ferris, chief pilot of U. S. Forest Service Region 5 and air coordinator for the project, gave the observers a running commentary on the operation.

First a light helicopter picked up a hose line from the bed of a pumper.

L. A. County F. D. Photo

**Observers watch test burning in Area No. 2, testing value of chemical retardants on grass fires at "Operation Firestop."**

L. A. County F. D. Photo

**Observers on hillside watch "Operation Firestop" at Camp Pendleton. Most of these men are delegates to the Pacific Coast Inter-Mountain Association of Fire Chiefs meeting at Long Beach. Others are press, radio and military representatives. Note newsreel cameras in background. Chiefs were told to wear old clothes.**

The 1½ in. hose weighed 30 pounds, with connectors, per 100 feet. It was made of nylon, colored bright yellow, and had a cotton jacket.

It took about 20 seconds for the helicopter to pick up the hose and carry the line from the canyon road to the top of the hill where the line was handed to a crew attempting to control a small test fire.

In about 10 seconds more the line was charged and water was pouring on the flames.

"Why, it would have taken us 20 minutes to climb that hill with hose," commented Captain Robert E. Radke of the L. A. Fire Department Mountain Patrol. "It certainly would save a lot of backbreaking work and manpower as well as time."

Next the helicopter came back to the canyon and picked up a charged 1" rubber line from the same pumper's hose reel. The 'copter quickly carried the line to the top of the hill where the observer in the aircraft proceeded to pour water on the hilltop below. There was no fire in this test.

Many of the chiefs present were particularly enthusiastic over this operation.

"The use of helicopters in Civil Defense work apparently will have almost unlimited possibilities," one veteran chief pointed out.

"Why, I could have a helicopter take a line and men to the top of one of our giant hangars in event of a fire," commented Chief Ben McGhee of the Douglas Aircraft Company's Santa Monica plant security force.

In still another operation, the helicopter dropped a water bomb in a plastic bag through a burning fence on the canyon floor. This did not put out the fire, but did effectively wet down much of the surrounding area.

Another test was when the helicopter dropped a plastic water bag at the end of a rope to hit the top of a tree in a demonstration of pendalum bombing.

The group then was scheduled to see the most spectacular experiment of the day—dropping of water bombs on a brush fire from a torpedo bomber by Flier Paul Manz.

However, due to technical difficulties of getting the water into the hull of the plane, the experiment was delayed until September, at Orange County Airport.

L. A. County F. D. Photo

**Helicopter hovers over tree at "Operation Firestop" with pendulum water bomb in plastic bag.**

Meanwhile, the new Los Angeles County Fire Department bulldozer with the power hose reel on the back was demonstrated under the direction of Assistant Chief Harvey Anderson.

The big bulldozer cut a line with its blade and then laid a 1½" line as it went up the side of a hill. Later the cat reversed the reel and picked up the line.

Many of the viewers showed keen interest in the bulldozer's performance and several noted the wide CD potential here.

"Why, if an area was bombed so that you couldn't use streets, this bulldozer could clear a path and lay a line at the same time."

Chief Anderson pointed out both L.A. County and City departments have been using the reel-equipped bulldozers with great success and saving of manpower in recent fires.

L. A. County F. D. Photo

**Fire in test area No. 1, sprayed with chemical, burns. Retardant was sprayed across top of test area. At far left it can be seen where retardant held flank of fire, but it failed to hold top of fire. Engine 73, L. A. County's new triple combination is at left, with CD 30 pumper at right.**

Tests were concluded with helicopters again demonstrating how fires can be rotor-fanned.

During the first week of September, the Paul Manz water bombing tests were held at the Orange Airport near Santa Ana.

Only official observers witnessed this test.

Manz first made a trial run at 3,500 feet in the big torpedo bomber to see if the water drop would interfere with the plane's tail during operations. The plane had been equipped with new wooden bomb bays and the water was carried in plastic weather balloons. The drop went off satisfactorily.

Next Manz made a very low run and dropped 400 gallons of water on the runaway. Then he made another run at 50 feet.

Observers said that 50 foot-drop was more effective than the lower one.

"The higher drop achieved much better dispersal," said Chief Klinger. "The water was just running off the asphalt runway in heavy rivulets.

"I think that we are now really on our way in this aerial water drop problem," the chief commented. "There is much more to be done and there will be more tests later."

No fires were involved in this test.

At this time some of the field personnel and equipment on "Firestop" were pulled off to assist in a forest fire in the nearby Lake Elsinor region of Southern California.

Dr. Arnold and other scientists plotted weather conditons during the blaze and said afterwards that they felt that with balloon soundings of cumulous clouds approaching a fire it could be predicted within three or four minutes when the clouds would siphon the fire.

Dr. Arnold said that only a small staff would remain at Camp Pendleton after October 1, but that there would be other tests taking place there. He pointed out the project will officially continue until July 1, 1955.

"We have just received authorization from the Chief of Naval Operations to use some of the big Marine helicopters in our tests. I hope that we will be able to use these big aircraft very soon.

"Frankly, I think that they will be

(*Continued on page* 940)

# 'Exposures' Responsible For Most Conflagrations; Large-Loss Fires

## A Study of Cause and Effect, and Measures to Help Correct This Hazard

By ROI B. WOOLLEY
Assistant Editor

*Author's Note:* Any serious study of the propagation and spread of fire must recognize and consider the all-important element of exposures. A common term in the parlance of the fire fighter, "exposure" has come to have many connotations, many meanings, many applications.

The bibliography of the fire service includes considerable educational and informative material on this most interesting subject, but this is believed to be the first time that anyone has attempted to condense the fundamentals of its application to fire suppression by the nation's fire fighters, into a single short study.

In attempting this, the author has borrowed extensively from the literature of such authorities as the National Board of Fire Underwriters, National Fire Protection Association, International Association of Fire Chiefs, and the extensive case studies in the files of FIRE ENGINEERING, as well as the text books published under the name of its publisher, Case-Shepperd-Mann Pub. Corp.

To these authorities the author makes grateful recognition.

THE dangerous and destructive exposure fire is almost without exception, an American phenomenon, and one about which this nation cannot boast. It is all but unknown in Europe (except of course during the course of World War II).

It is a rare experience for a fire in most European cities to get out of control and extend even to other floors of the building of origin. Much less are these cities accustomed to the sight of fire communicating with neighboring structures.

This condition is not the result of superior fire fighting facilities, for municipal fire departments of this country are superior both in equipment and training to most of those maintained in Europe. It is true rather to a number of factors, the first of which is the fire-resistive and retardent nature of building materials employed abroad. Wood is scarce; brick and stone plentiful. Thus, fire-resistance is a virtue of necessity throughout most of Europe.

Supplementing this is the notable severity of municipal building laws, accepted without question by architects, builders, and occupants for generations, laws that require floor-to-floor cut-offs and limitation of floor area. Height too is regulated. Therefore by confining a fire in a building already largely of unburnable material, few fires reach sufficient intensity to spread. Naturally,

**Left:** When a five-story business block "lit off" in downtown Cincinnati in 1953, fire stream curtains blocked its extension across the narrow alley shown. Front of blazing structure was swept by other streams to check threat of frontal extension.

**Right:** Chicago fire fighters worked fast to prevent extension of threatening fire in a railroad freight terminal from involving 33-story downtown skyscraper. Unprotected windows have proved downfall of many an unexposed "fire-safe" building. Note tendency of heated smoke and gases to follow up along face of building.

fires in such structures are easy to control.

Perhaps it is unfair in the absence of restraining laws to criticize too severely the nation's builders of those earlier days for utilizing those materials which were most abundant and cheapest. But conditions are changing. We are finding lumber resources becoming less abundant (partly due to our own improvident habit of burning our resources at the rate of $100,000,000 or more a year). Already we are being forced, regardless of regulations, to adopt fire-resistive building materials. Another plus-factor, also, is the continual improvement in our building codes and regulations from a fire-safety viewpoint. There is a slowly but surely widening acceptance on the part of municipalities of the need of close regulation of internal construction, and storage and handling of combustibles.

Opposed to this progress, however, is the simple but obvious fact that notwithstanding our building regulations and fire prevention codes and ordinances designed to help confine fires by localizing them from exposure, large-loss fires persist. According to one authority, (Dominge and Lincoln, in Fire Insurance Inspection & Underwriting, 6th. ed. 1948), "about one-tenth of all losses are caused by exposure fires."

Nor are these large-loss fires (and many which are classed as serious fires) limited to buildings of non-fire-resistive construction. According to Mathew Braidech, research director of the National Board of Fire Underwriters, "large manufacturing establishments . . . are becoming more vulnerable to fire and explosion as a result of their use of complex and hazardous processes."

As this Journal has repeatedly stressed, fire in this chemical era gets a fast start, often explosive in nature. Today it finds flammables and combustibles upon which to feed and spread, of a type and nature and quantity, never before encountered by the nation's fire forces. All of which is sufficient reason for redoubled study of and an effort to correct, the causes of that all-embracing evil, the "Exposure Fire."

Exposures are first concern of fire fighters in tackling lumber yard fires. Here flames roar through the Northern Pine Lumber Co. storage, Fort Edward, N. Y., jumping from exposure to exposure almost before firemen could get ahead of them.

Right: A conflagration in the making—with street no barrier. A block-long, three-story factory in Paterson, N. J., erupting to ignite and engulf frame stores and dwellings across the thoroughfare. Note radiated heat; autos caught in direct fire; power and phone wires down and hydrant made inoperable by exposure. Fire was finally controlled with loss of $750,000.

## Definition

Any study of exposures, as related to fire control, may well begin with a definition of just what is meant by exposure, and exposure fire.

One of the best definitions we have seen is that of the National Board of Fire Underwriters.[1] "An exposure fire is any blaze that has extended from the place of its origin either to another building or to a quite independent unit of the same building; the former being known as external exposure, and the latter internal."

Still another and somewhat similar definition is this[2]: "An exposure fire . . . may be defined as a fire that has spread from the place of origin to other sections or the entire building or a fire that has spread from the original involved building to other buildings."

Thus we see that there are two general types of exposure fire: (a) external and (b) internal exposure.

Bearing further upon these classifications of exposure fires, it is well to emphasize that an "exposure fire" need not necessarily mean a fire that has extended from one *building* to another. Exposures may be storages in the open and the fire communication may be from an open area to a building, or vice versa.

It is well, also, to bear in mind that practically every fire that develops within a building and spreads throughout it, communicates by literally feeding on some sort of combustible "exposure." These may be flammable contents and/or combustible construction of the building itself.

## A Major Conflagration Cause

The fire loss due to exposures exceeds by far that resulting from any other known cause. Thirty years ago the National Board of Fire Underwriters said: "Few problems lying within the twin domains of fire prevention and fire protection are causing greater concern to insurance engineers and underwriters than the hazard of communicating fire, or, technically, exposure." They might well have added that this same condition was of serious concern to the fire service. And today the condition still persists, notwithstanding all efforts to reduce the hazard through improved construction and fire control and prevention methods.

The wood shingle roof, which constituted the greatest single external exposure hazard of those years—as witnessed by conflagrations in Astoria, Ore., Berkeley, Calif., Shreveport, La., Fall River, Mass., and many other places, has fortunately been outlawed in many states. But in its place have come other hazards, both internal and external.

According to the National Fire Protection Association, in 1952 and 1953

[1]Safeguarding America Against Fire. Vol. VI, No. 3. Mar., 1933.

[2]Fire Service Training. Trade and Industrial Education Service. State Department of Education, Columbus, Ohio.

"one in every 3 fires (in the large-loss category) involved more than one building!" Of the 293 fires in the United States and Canada with individual losses of $250,000 or more, nearly 100 of them spread to exposures. Commenting on this fact, the N.F.P.A. said "It is interesting that the reasons for the involvement of exposed properties were also identical in that there were 44 cases in which structural weaknesses were deemed primarily responsible. In 9 cases it was noted that there was inadequate separation between structures despite the fact that space was available to provide adequate fire breaks."[3]

## Contributing Factor to Fire Communication

There are a number of causes which singly, or in combination, contribute to serious exposure fire. For the most part, conflagrations, which invariably are exposure fires-plus, spawn in congested areas, lacking fire-stops, cut-offs, and exposure protection and where are located hazardous occupancies without adequate protection, run-down, fire-breeding structures, and the like. Areas of potential serious exposure fire are known in almost every municipality. In the "target cities" they constitute the most serious threat to those municipalities in the event of wartime incendiary attack.

These are direct, basic contributing factors. Because of one or more of these drawbacks, fire in an individual occupancy may pass beyond control, that is, beyond the possibility of its being localized at the point of inception, because of the size of the hazard, or, because of the combustible nature of the building construction, or flammables housed in the structure itself.

Fire may extend outward through openings, or it may enter through them. Parts of burning buildings, such as walls, floors and roof, may collapse and scatter burning brands over wide areas. The spread of fire also is influenced by the width of streets and presence or absence of open spaces, parks and public squares; by the velocity and direction of prevailing winds and general weather conditions (humidity, heat, etc.), and by the ability of neighboring (exposed) construction to withstand the effect of heat waves or radiation, or of flying sparks or brands. Also, bearing upon the speed and extent of communication (exposure to exposure) are such other factors as the adequacy of fire fighting facilties; the water supplies and pressure; promptness in discovery and transmittal of alarm, and delay by the fire forces in responding.

Only where a building (or outdoor storage) lies wholly outside the possible range of flying sparks and embers can the exposure hazard be considered as entirely eliminated; and as the N.B.F.U. points out: "in the environs of American towns and cities such detachment is exceptional." Nor where exposures are concerned, are there any means of determining what constitutes a safe distance; fire engineers maintain that glowing particles from a burning structure have been known to travel, borne on a strong wind, as far as six miles.

Direct contact of exposures by flame is not the only method by which fire

[3]Summary of Large Loss Fires in 1953. N.F.P.A. quarterly, Jan., 1954.

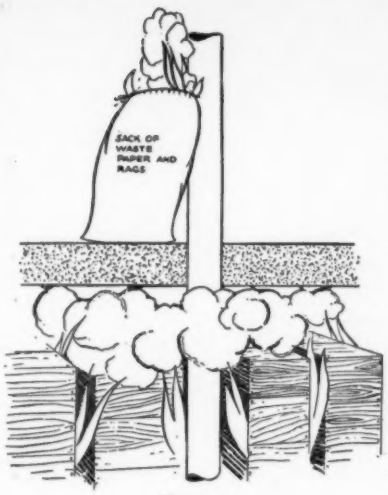



Figure 1

may spread. In our study of exposure fire we should consider all the ways by which heat may be transmitted to exposures—external and internal.

There are three basic methods whereby heat may be transmitted in sufficient intensity to cause fire in exposed combustible material. They are:

1. Conduction
2. Convection
3. Radiation

These methods are entirely distinct from each other. We shall discuss them in the above order.

**1. Conduction.** Conduction is the process of the transmission of heat within a material from one particle to another or from one material to another which is in contact with it, without any visible motion of the material.

Fire is not often spread by conduction.[4] But a single example should show how fires actually extend by conduction of heat along metallic substances.

Fire occurred on the ground floor of a modern reinforced concrete loft building. Extending through the floor from the ground floor to upper floors was a large steam pipe, which was not being used at the season of the year when the fire occurred (Fig. 1).

In contact with the pipe on the first floor were a number of packing cases containing pasteboard and wood novelties. The fire extended through a radius of about 25 feet around the pipe and when the department arrived it had been burning fiercely, but had not communicated to the upper floors.

The section of the room containing the packing cases was walled off from the remainder, which probably accounted for the confining of the heat around the pipe. After the department had put the fire out, a fireman went to the floor above and discovered a sack of waste paper and rags afire. This had been leaning against the steam pipe.

The fireman at first thought the fire had communicated from the floor below through a space around the steam pipe, but upon close examination he discovered that the pipe was tightly fitted in the concrete—in other words, the concrete flooring had been repaired after the pipe had been put through and was tight around the pipe.

The captain of the company was called and, curiosity getting the better of him, he held a match against the steam pipe at the point where the sack had been resting against it. The match quickly ignited. It was evident, therefore, that the fire had communicated from the floor below to the floor above by means of conduction of heat along the unused pipe.

[4]The Fire Chiefs' Handbook. By Fred Shepperd. Case-Shepperd-Mann Pub. Corp., New York, N. Y.

**Internal exposures responsible for this fire spread. Fire, feeding on combustible exposed contents of this row of frame dwellings in Baltimore, Md., communicated throughout the block causing heavy loss. Party walls and parapets would have isolated exposures, and aided in confining the fire.**

While firemen wet down some exposures (left), spectators supply motive power to shove loaded box car from its hazardous position adjoining blazing rock crusher.

Applying this same principle, it is possible for a fire to start on the opposite side of a brick wall by conduction from the original fire, either through conduction of heat by the brick wall, to a combustible material in contact with the wall, or by means of the heat passing along metal pipes (as we have seen) or ducts, or drive shafts which extend through the wall. Steel "I"-beams, iron doors and other metal materials will at times cause fires to propagate in other areas by conduction.

To offset the possibility of fires starting by conduction many building codes require open air space between heating devices and wood floors.

The following table gives some idea of the relative heat conductivity of more common metals and materials (metals of course are not the only heat conductors):

| Good Conductors | Medium Conductors | Poor Conductors |
|---|---|---|
| Silver | Granite | Wood |
| Copper | Limestone | Asbestos paper |
| Aluminum | Ice | Sawdust |
| Brass | Brick | Paper |
| Zinc | Glass | Linen |
| Tin | Water | Cotton |
| Iron | Plaster | Silk |
| Lead | | Wool |
| | | Air |

It will be seen that silver is the best conductor of heat and lead the poorest among the metals named.

**2. Radiation:** Radiation is the transmission of heat from one heated object to a colder one by heat waves, or rays. Radiant heat will not pass around a corner but the rays proceed in a straight line away from the heat giving object; hence the use of sunshades and fire screens.

The amount of radiant energy received by a body from any small area varies inversely as the square of its distance from this area as a source.

Radiant energy is reflected from a polished surface so that the angles made by the rays direct from the source are equal to those made by the reflected rays (angles of incidence and reflection are equal).

The capacity of a surface to reflect radiant energy depends both upon the polish of the surface and the nature of the material; the polished surface will reflect more heat than the unpolished one.

All bodies, it should be said, do not absorb heat equally; some, as indicated, reflect this heat. A dark, rough body will asborb more heat than a bright, smooth body and the latter will reflect more heat than the former. All this has a bearing on fire extension and communication.

The most common source of radiant heat is of course the sun. While exposed to the direct rays from the sun, an object will receive the full strength of its radiant heat. If the object is placed in the shade however, it would be shielded and whatever object has furnished the shade (such as the sunshade) would either absorb or reflect direct rays and give protection to the object.

This same principle applies to the way fires may spread to exposures by the principle of radiation. Whenever any combustible material is exposed to the direct rays from a fire, the radiant energy passes from the fire to the material and when the material reaches its ignition temperature it will burst into flame.

If, however, some substance such as water—which acts as an insulator, is set up between the source of the heat and the exposed combustibles, the exposure material may not become hot enough to ignite. Fire fighters accomplish this with fixed or portable fire streams, or water curtains. The water not only absorbs the radiant heat but also provides the exposed combustibles with an insulator or protected covering of moisture that must be vaporized before the radiant heat can raise the temperature of the exposed object to its ignition temperature.

Heat radiation is a two-way process. For example, heat may radiate from a stove to the wall, and the wall in turn may radiate heat in all directions when heated above the temperature of other objects in the room. The rays from a source of heat radiate or spread out in all directions but as we have pointed out previously, the further an exposed object is from the source of the heat, the less is the heat concentration that will reach it.

**RELATIVE RADIATING AND REFLECTING POWER OF DIFFERENT SUBSTANCES***

| Substance | Radiating or Absorbing Power | Reflecting Power |
|---|---|---|
| Lampblack | 100 | 0 |
| Water | 100 | 0 |
| Writing paper | 98 | 2 |
| Marble, ivory, jet | 93-98 | 7-2 |
| Cast iron, bright polished | 25 | 75 |
| Glass | 90 | 10 |
| Mercury | 23 | 77 |
| Wrought iron, polished | 23 | 77 |
| Zinc, polished | 19 | 81 |
| Steel, polished | 17 | 83 |
| Brass, cast, dead polished | 11 | 89 |
| Brass, bright polished | 7 | 93 |
| Copper, varnished | 14 | 86 |
| Copper, hammered | 7 | 93 |
| Gold | 5 | 95 |
| Silver, polished bright | 3 | 97 |

As to the conducting power of metals, the following table is presented:

**RELATIVE HEAT CONDUCTING POWER OF METALS**

| Metals | Relative Heat-Conducting Power |
|---|---|
| Silver | 1,000 |
| Gold | 981 |
| Gold, with 1% silver | 840 |
| Copper, rolled | 845 |
| Copper, cast | 811 |
| Mercury | 677 |
| Aluminum | 665 |
| Zinc | 628 |
| Wrought Iron | 436 |
| Tin | 422 |
| Steel | 397 |
| Cast Iron | 359 |
| Lead | 287 |

To interpret the above table, silver is the best conductor of heat of the materials named while lead is the poorest. In other words, under the same conditions silver would conduct more heat than any of the other substances, while lead would conduct least—less than one-third that of silver.

*From the "Fire Chiefs Handbook"

**3. Convection:** By convection is meant the transfer or transmission of heat by a circulating medium, either liquid or gas.

The heat from a burning substance may be distributed by the process of convection, the heated particles of gas themselves forming the air currents. Heated air expands and tends to rise and therefore heat transfer by convection is mostly in an upward direction, although air currents can carry heat by convection in any direction. Heat transfer by convection from a heated object is in direct proportion to the difference in temperature between the heated object and the surrounding air.

The most common fires caused by convection currents encountered by firemen are: the transfer or passage of heated gases to upper levels of buildings from a fire on lower levels; and the movement of heated gases and embers from one burning building to another building.

Fire fighters should be familiar with the several methods of heat transmission and communication outlined. Communication by convection deserves special study because it is the presence of these heated gases, setting up convection currents, that creates the possibility of "backdraft" or "mushrooming" of fire within a burning structure, and also the pre-heating of buildings in the path of a conflagration.

## How Materials Burn

Logically, fire communication and

Photo by James Hefferman

**This fire got the jump on New York fire fighters but was finally confined by a "borough-call" assignment—heaviest in years—which headed off threatening blaze. Fire fighters are shown here using heavy streams on flimsy, combustible exposures, not all involved by fire, to block advancing blaze.**

spread is closely related to the question of heat as well as heat transfer. Students of the subject of fire propagation and spread, with special reference to the ignition of exposed combustibles, will find their knowledge of fire combustion and heat temperatures helpful. It is unnecessary to review here the reasons why and how materials burn; that information is available in numerous textbooks and manuals.[5]

It might be well, however, to review, briefly a few of the major points in regard to burning, which have special emphasis on exposure and exposure fires.

1. Before a substance can burn there must be some heat present to raise the temperature in the material to its ignition point.

2. Before bursting into flame, a material must first be hot enough to throw off combustible gas, or gases, and oxygen must be present and combine with such gases in the proper amount before burning can take place.

3. Extreme temperatures may be produced during the process of combustion, both within burning buildings and outside. A common match will produce temperature of 1200 deg. F; a blowtorch, 1800 deg. F. The fire records have included instances where fires have been extinguished that have fused metals having a "fusion point" of upwards of 2200 deg. F.

5. A vast majority of the elements that make up the materials used in normal building construction will burn or degenerate in time if the temperature is high enough and sufficient oxygen is present.

6. All gases tend to expand 1/460 of themselves for each degree of heat (Fahr.) added. If the heat attained at fires can be assumed to be near 1800 deg. F., the various gases given off would be heated to this same temperature. The gases having expanded to about four times their original size, become much lighter than the surrounding air and therefore rise and spread in all directions.

7. Fire may communicate, or spread by convection or radiation either *within* buildings (internally) or *from* building to building (externally), or *from* floor to floor externally.

[5]Among others, *Fire Service Ventilation in Principle and Practice*, Part II. Heat Smoke and Gases; Effects of the Products of Combustion . . . Explosives . . . Backdrafts. By Roi B. Woolley. FIRE ENGINEERING, Dec., 1953.

## How Fire Extends

We have briefly outlined the three basic methods of fire extension, by Conduction, Radiation and Convection. It might be helpful to review the several ways fire may extend via *internal* and *external* means.

**Internal extension:** Fire may spread *internally* throughout a building by means of any one or all of the above methods, from room to room or floor to floor, by means of the following:

**Room to room, on the same floor,** through horizontal openings, hallways, doors, windows, transoms, pipes and ducts and other openings.

Conduction of heat by unprotected steel columns or beams or metal pipes which communicate from the room involved by fire to another room.

Radiated heat which ignites combustibles exposed to the original fire.

Convection currents of super-heated atmospheres, smoke and gases which come in contact with combustibles.

Burning through interior partitions or walls.

Ignition of exposed combustible materials located too close to protected walls and/or openings.

By entering and traveling through concealed spaces, such as partitions and floor joist openings, false attics, etc.

**From floor to floor** by means of:

Unprotected floor openings, shafts (such as elevator, stairway, dumbwaiter, pipe, etc.)

Convection currents of super-heated air, smoke and gases (vertical extension).

Radiated heat, igniting combustibles above the fire floor.

Conduction of heat by means of unprotected metal such as steel beams, pipes, ducts, etc.

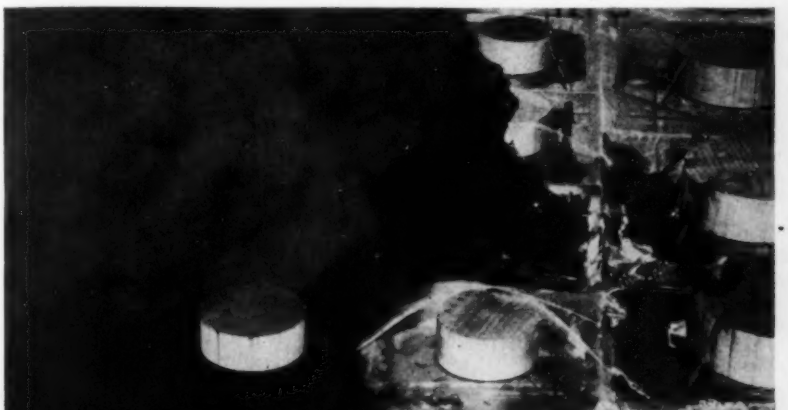
Burning through outside openings such as windows, and entering upper floors through unprotected openings (variously termed "lapping").

By entering partitions or concealed spaces, not fire-stopped, and spreading to upper areas.

By means of combustible material located too close to protected openings.

**External Extension:** Fire may spread *externally* from one structure to an ad-

(*Continued on page* 955)



**When you can't extinguish—then confine! Fires in petroleum products storage plants, such as this at the Central American Tank Storage Terminal, Houston, Tex., are anathema to fire fighters whose first and chief objective must be to cover exposures. A grass fire started this inferno which burned over 24 hours.**

# Radio-Controlled Department Guards Vast County Area

## Dispatch-Report System Doubles Efficiency; Use of Portable Radiophones Speeds Operations

PROVIDING fire protection for a city of 310,000 inhabitants with realty values exceeding $875,000,000 is a challenging job. However, if you spread the inhabitants and values over 615 square miles, the task becomes doubly difficult.

This is the situation which daily faces the Baltimore County Fire Department (Maryland). The County almost completely surrounds the City of Baltimore and extends northward to the Pennsylvania border. It contains a densely populated suburban area fanning out for about six miles around the city, heavy industry like Bethlehem Steels' sprawling Sparrows Point mills or the huge Glenn L. Martin plant, rich farm lands, and a multitude of schools, homes, institutions, and stores which serve a population which has doubled since 1946.

Left: The central base station antenna is mounted at the highest point in the county, on top of the Towson water tower. An auxiliary antenna is mounted on the transmitter shack at the right. Right: Sirens at volunteer company stations are electronically controlled from headquarters in Towson. Although the station is unattended, the volunteers are dispatched to the scene of a fire with "paid company" efficiency.

### Paid Stations Strategically Located

A. P. Orban, Department Chief, and F. L. Cockey, Deputy Chief, explain that they have been fortunate in building up the department. While they make the universal complaint that they "never have enough money," the Department's 1954 budget totals $1,118,000, sufficient to maintain ten well-equipped stations with salaried firemen and an extensive volunteer network comprising twenty-eight stations.

The ten paid stations are spaced about three miles apart in the center of the six-mile deep industrial-residential belt. If you visualize the face of a watch, the stations would be positioned about every five minutes, starting at seven and proceeding clockwise to five, with Baltimore harbor accounting for the missing ten minutes.

Central headquarters at Towson, located at 12 o'clock, is three miles north of the city line. At headquarters all activities are centered, and from this station Battalion Chiefs direct the activities of the Eastern Division (five stations) and the Western Division (five stations).

The Department works a two-shift day . . . ten hours daytime, and fourteen hours nighttime . . . with 226 men employed. Every male employee of the department is a qualified fireman.

Every paid station has one 750 gpm pumper with a 300 gallon water tank and five additional units are housed in stations adjoining areas of dense population or industrial plants. In addition, a 500 gallon tank truck and a 65-foot aerial ladder truck are available for use anywhere.

Portable extinguishers in larger capacities are used widely throughout the Department. Every fire truck carries two 15-pound Kidde carbon dioxide units, one 30-pound Kidde dry chemical portable, and 2½ gallon water, foam, and soda acid extinguishers. Each truck also has 1,600′ of 2½″ hose, 300′ of 1½″ hose, assorted nozzles, 4½″ suction hose, and other appropriate equipment.

New County fire department headquarters at Towson will be completed during 1954. More than $750,000 is being spent on the project which comprises a new fire school, maintenance facilities, offices, station house, sleeping-recreational rooms, and an auditorium.

### Volunteer Groups Play Vital Role

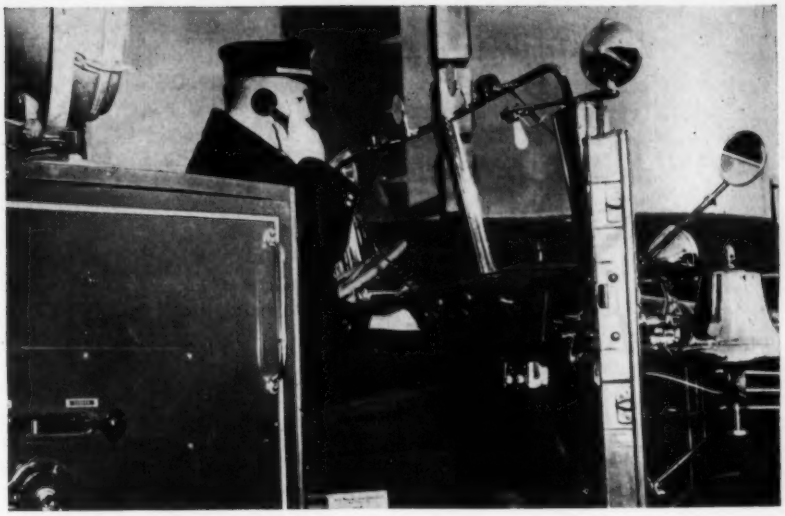
The paid department is backed up by twenty-eight volunteer departments. These units are scattered throughout the County. Except for a token annual payment by the County, they are wholly self-supporting and have purchased sixty-three vehicles of assorted types. In the event of a total emergency, almost 3,000 volunteers would be available to man the equipment.

### Radio Widely Used

The radio equipment installed and now in service consists of the following:

At the Towson Central Station, two 250 watt Motorola radio transmitters and receivers. The transmitters are located in a separate building and the antenna is located on an adjacent water tower, with an emergency antenna on the transmitter building. The antennas have a height of approximately 152 feet

Inside a burning building, minutes are saved when water pressure adjustments are directed by radio.



Deputy Chief Lee Cockey can check with the dispatcher from any point in Baltimore County.

and full coverage of the county is the result of this installation.

The 9 stations are equipped with station receivers. At each of the 27 volunteer stations there is installed a 12 watt and some 60 watt base station transmitters and receivers so that two-way channels of communications are had at all times with Towson Headquarters.

Approximately 100 60-watt mobile radio transmitters and receivers are installed in fire apparatus and Chiefs' cars. Soon all associated department vehicles will be radio equipped.

One of the outstanding features which again is a compliment to Chief Orban's forethought is the installation of equipment at the main radio station so that fire department sirens can be electronically activated by department, by area, or all simultaneously. In addition, another phase was added so that the fire department can activate the Civil Defense air raid system electronically by the Motorola Quik-Call system.

The method of operation is simple and effective. A telephone operator and a dispatcher are stationed in the dispatch room above the fire house at departmental headquarters in Towson. A manually operated recording device is connected to the switchboard to record all calls taken by the operator. The dispatcher sits before a desk on which are placed two remote control consoles, one in operation and the other a standby unit, a 32-button quick-call selector box and two recording units. All radio messages, both incoming and outgoing, are recorded automatically with the recorders actuated by a self-contained voice operated relay. Thus, the entire recording operation is automatic, even to the switchover from one recorder to the other when the record in use is filled. The quick-call equipment permits the dispatcher to control the volunteer station sirens individually. The dispatcher uses the button on the CD timer on the selector box to operate all the Civil Defense sirens simultaneously in accordance with the prescribed code.

All fire calls in the county outside of the city of Baltimore are directed over the telephone system to the central station. The telephone operator passes the information to the dispatcher who calls the fire station nearest the fire over the radio network. If the station is staffed by paid firemen, he speaks to the local radio operator who takes the information and sounds the alarm. All further communication is conducted between the headquarters base station and the mobile unit in the dispatched truck or trucks.

However, if the nearest station is manned by volunteer firemen, the dispatcher selects the receiver at the proper station through the quick-call equipment. The receiver thus activated operates the local siren to summon the firemen. Once the firemen arrive at the station, they use the two-way mobile unit in the station vehicle to obtain further information from the dispatcher as to location of response. If and when alerting receivers are located in the volunteer firemen's residences or place of employment, he can secure information in this manner and respond directly, reducing the time element in response.

This centralized dispatching coupled with facilities for constant communication with fire apparatus on the road or at a fire, enables headquarters to keep fully informed during every emergency, whether of major or minor proportions. Chief Lee Cockey of the Baltimore County Fire Department feels that this combination of concentrated information and versatile communication equipment makes possible the maximum utilization of available men and apparatus in time of emergency.

Dispatching of additional apparatus and filling in, if the situation warrants, are facilitated by the system. There is no transition from local to remote control of operation and consequent confusion when the fire attains a certain "difficult-to-determine" magnitude.

The ability to call back a dispatched truck, as soon as it becomes evident that it is not needed, decreases costs and increases departmental effectiveness. In an area as large as that protected by the Baltimore County Fire Department, runs of 30 to 40 miles are not uncommon. Before radio, a truck a block from its station was out of reach. If sent on a long and unnecessary run, it might be lost to the community as a protective implement for two to three hours. The economy effected in minimizing such runs will go a long way toward amortizing the radio system's cost.

A small building next to the tank on which the antenna is located, contains two 250-watt master transmitter-receivers. These sets are energized by line power and are alternated weekly. Should the set in operation fail, the standby assembly automatically takes over. Similarly, if public power fails, an auxiliary gasoline generator automatically cuts in.

While this equipment is valued at over $7,000, Chief Orban's main concern is not over its loss as much as what that loss could do to the efficiency of his Department. Fire was his primary worry as electrical equipment always presents a possible hazard, and the gasoline for the auxiliary generator is highly flammable.

To guard against this fire possibility, a Kidde carbon dioxide extinguishing system was installed in the unmanned building. Should fire flash, rate of temperature rise, fire detectors immediately trip a 75-pound cylinder of carbon dioxide. Under its own pressure, the carbon dioxide floods from its cylinder, passes through piping, and discharges from nozzles as an inert gas into the radio room and the auxiliary generator space. By displacing oxygen to a point insufficient to support combustion, the fire is smothered. Built into the piping network are pressure operated switches which are actuated by the pressure of the gas. When closed, they cause all electrical power for the equipment to be turned off, secure ventilation, and stop the auxiliary generator should it be running.

## Portable Radiophones

At a fire, portable "Handie-Talkie" radiophones are put to use. The group of firemen investigating the source of the fire carries a unit. Once the type of fire is determined, the officer in charge of the group calls the officer stationed outside at the field headquarters, who is in charge of the overall operation, to request the type of equipment best suited for extinguishing that particular fire, thus saving time when time is most vital. Once the equipment is brought to bear on the fire, the officer who requested the equipment uses his "Handie-Talkie" radiophone to direct the men who control the pressure in the

lines. All portable units operate on 153.83 mc to take advantage of shorter antennas and better penetration of building.

At a large fire, separated groups are each supplied with "Handie-Talkie" radiophones so that their efforts can be coordinated by the officer in charge of operations. In the words of Chief Cockey of Baltimore County Department, "In the past there was always a lot of deadwood at a large fire, men standing around for lack of direction. When every group carries a 'Handie-Talkie' unit, they can all be kept busy all the time." Through concentrated use of all the available men and equipment, damage and danger are kept to a mimimum.

Chief Cockey has realized the importance of using "Handie-Talkie" units to call firemen out of dangerous situations. "One fireman was recently put into the hospital for six months by a falling cornice he couldn't see. The danger was foreseen from down below, but we couldn't attract his attention. If we had had 'Handie-Talkie' units then, that man would have been well out of danger by the time the cornice fell."

Another very important application of the "Handie-Talkie" unit, at least in an area as extensive as that covered by the Baltimore County Fire Department, is in controlling line pressure when pumpers are used in relay work. In Baltimore County, lines sometime extend as far as 7,200 feet from water source to a fire. Pressure in these lines is maintained by four or five pumpers placed at intervals along the lines. Complete coordination between the men at the fire and the men at the trucks was impossible before the department obtained the portable radios.

The Civil Defense tie-in system is a unique electronic addition to the fire department radio network. This additional system is not essential to the proper operation of the network, but the combination of the two works to the economic advantage of both the fire department and the civil defense organization. If the two groups set up their systems independently, the duplication at key points would have proved quite expensive.

The civil defense group has placed sirens at strategic points so that in the event of an alert the signal will be heard throughout the county. The sirens on the volunteer firehouses are among those used in this manner. Each siren is audible a mile away in all directions.

Each siren is controlled by a quick-call equipped receiver. When an alert is to be sounded, the dispatcher at the central base station closes the group call key on his 32-button selector box. The transmitted group call activates all the civil defense receivers in the system, and thereafter for a predetermined interval the associated sirens operate whenever the carrier is transmitted by the central base station. During this interval, the transmission of the carrier is controlled by one of the two timers at the base station which turn the transmitter on and off in accordance with the established Civil Defense code.

This Civil Defense system has the dual advantage of being less expensive than a comparable wire line system and less vulnerable to damage or sabotage.

Each unit in the system is checked over once a month. If anything appears to be wrong with any of the units, the units are replaced and the defective installation immediately repaired.

At the present time, one of the county firemen is in training in the shop, as an electronic repairman. When his training period is completed, he will work with Chief Charles Burke, communications officer of the department. His duties will include replacing units not operating properly and correcting minor faults.

## Emphasis Placed on Training

Fire fighting training has high priority in the Department's yearly schedule. Not only does it maintain a complete training lot, but takes advantage of the facilities of the University of Maryland's fire safety curriculum.

All paid firemen initially go through a four weeks' training course when they join the department, while seasoned firemen attend a refresher course at least once a year. At the same time, the facilities of the Department's training lot are made available to the volunteer departments for a two-week period once a year, generally in August.

Available at the lot are a number of simulated hazard or danger situations which include a small four-room building representing a house. This structure can be flooded with smoke and permits exercises in the use of gas masks and removal of casualties on stretchers by ladder, from windows, and by the stairway in the building. The yard also contains a large concrete pit for oil fires, an old car which can be ignited for extinguishing training of this sort, a four-story tower for ladder and hose drills, a demolished cinder block structure for explosion-salvage training and several other common pieces of hazardous equipment of types which the Department frequently comes in contact with in the performance of duty.

Chief Orban states that this training falls into eleven major categories: 1. Evolutions in the use of ladders; 2. Use of hose lines on ladders; 3. Removal of casualties via ladders both by stretcher and body locks; 4. Ventilation procedures (smoke); 5. Proper entry of burning structures; 6. Size-up of a fire, and direction of personnel to overcome it (in this training every individual has a chance to act as a "Chief" and is under constant observation and appraisal); 7. Use of portable extinguishers; 8. Pump operation; 9. Fire truck driving; 10. Salvage. In addition to this practical

(*Continued on page* 948)

**Deputy Chief Cockey inspects carbon dioxide system guarding the department's vital radio transmitting-receiving equipment. If fire flashes in this unattended space, the rate of temperature rise element automatically triggers the carbon dioxide cylinder. Fire smothering gas discharges from nozzles inerting this space and the auxiliary generator room. All electricity and ventilation also automatically shuts off as system actuates.**

**All fire calls in the County are received at the Towson headquarters alarm dispatch room. Radio-telephone equipment permits instant contact with any paid or volunteer vehicle and any paid company headquarters. By the same method any volunteer station's alarm can be sounded from this room. The large board over the telephone switchboard visually gives the availability of any volunteer or paid vehicle while the indexed cards at the extreme right list every road intersection in the County. Symbols identify the map on which any intersection can be found.**

# Protecting Large Power Plants From Fire During Construction

## Many Temporary Hazards Must Be Covered; Congestion and Combustibles Add to Problem

BY CHARLES A. KEY
Specialist in Property Protection, TVA.

To meet ever increasing power demands TVA, since World War II, has built, or is now building, seven large steam plants. Of the plants, Kingston is the largest in the country, and Shawnee is believed to rank second. Size of the plants is mentioned only as an indication of fire problems met during construction. In addition, TVA has completed several large dams since VJ Day, to strengthen its system of multiple-purpose dams.

The continuous TVA-wide fire prevention program was initiated at the beginning of each project, but that was not enough because such construction by its nature is unavoidably hazardous—large scale welding with deluges of sparks; flammable liquid storage and use; millions of dollars of equipment stored in combustible cartons and containers; housekeeping in a booming, widespread construction area; dormitories, villages, cafeterias, hospitals, oxygen, acetylene.

All these problems had to be dealt with. Prior to the beginning of each project, staff meetings were held, and memoranda and blueprints were shuffled back and forth. Then field surveys were made. A standard form was developed to assist the persons making the survey. Upon conclusion of the surveys, the survey team met with the Project Manager and discussed its findings, made recommendations. Shortly thereafter the survey results were formalized in a memorandum to concerned officials. Resurveys were made at later dates to see how the original recommendations were carried out.

This went on for project after project, with much traveling over the seven valley states, much discussing, much writing. And it became obvious that a number of problems on each project were common in type and scope, and would be so on future projects. So the Division of Construction, which had jurisdiction over all construction projects, and the Division of Reservoir Properties, of which the uniformed Public Safety Service is a part, got together and agreed on a set of fire protection standards. These standards largely govern fire protection activities on existing and future steam plant jobs; and also, as they may apply, to hydro construction. The standards, with the covering memorandum from George K. Leonard, TVA's Chief Construction Engineer, to his project managers, is as follows:

"Fire is an ever-present menace. It is a ready tool of the enemy agent. But whether planned or accidental, it can within hours destroy the work of months and years. Project officials should give serious consideration to each hazard detected. They should move promptly to correct the hazard or to report to the Public Safety Service their decision regarding disposition of the hazard. Project officials and Public Safety Service must work cooperatively to infuse and maintain in each employee on the project a sensitiveness to the dangers of fire—a fire consciousness. Fires, however insignificant, must be promptly reported to the Public Safety Service.

"Several letters of instruction have been issued covering steam plant fire protection, chief of which is the one I sent to project managers on January 7, 1952. The attached standards have been proposed by the Division of Reservoir Properties which is responsible for fire protection throughout TVA. I have approved them for use on all steam plants and you are requested to take the necessary action in connection with their enforcement. I am sure that the managers of other projects will find them useful, too, although at this time the stipulations for the steam plants would not be applicable to all projects.

"I would suggest that you take the matter up with your general foremen and others at one of your future safety meetings. I am sure that if you so desire you could get Mr. C. A. Key to attend your meeting and give it special emphasis."

### Steam Plant Fire Protection Standards

#### WATER SYSTEM

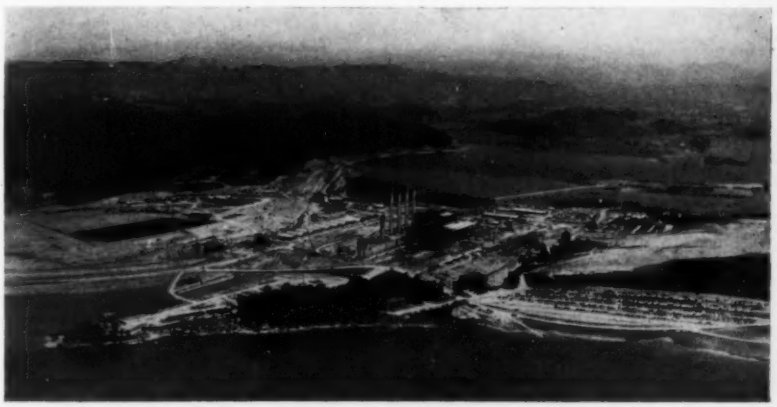
The fire fighting water system is primarily a raw-water, direct, pumping system. It will include the following features:

*Raw Water Pumps:* Pumping plant will include two 1,000-gpm motor-driven pumps and one 600-gpm diesel-driven pump. One motor-driven pump will operate automatically to the storage tank; the other will operate manually. The switch for the manual pump will be located in Public Safety Service headquarters. Construction pump operators will be designated to operate the diesel-driven pump on a 7-day-per-week, 24-hour-per-day basis.

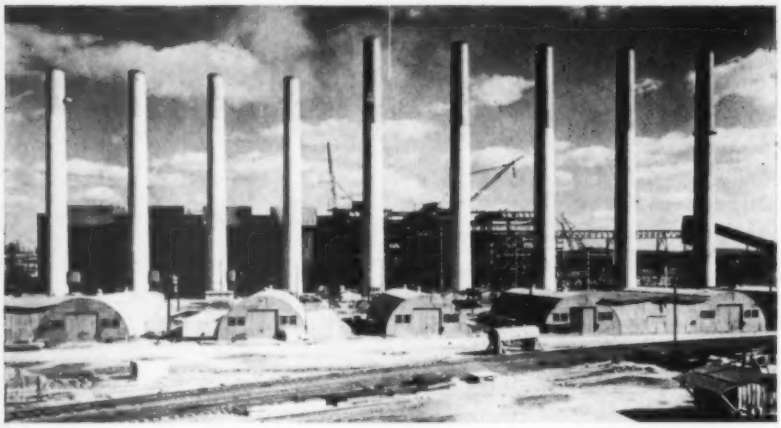
*Elevated Storage Tank:* The 50,000-gallon elevated storage tank is permanent equipment but will provide a supplement to the pumps. An altitude valve will be installed to prevent overflow.

*Powerhouse Protection:* The powerhouse distribution system will consist of risers from the basement to the top level, one riser being provided for every two units. Risers will be connected on each floor level with distribution mains on which hose will be located at points to be decided by project officials and the Public Safety Service. Two 700-gpm booster pumps will be inserted in the system in the basement. Automatic pressure switches will be set to provide a constant pressure of 75 psi anywhere in the structure. Navy all purpose type fog nozzles should be used exclusively in the powerhouse. The water system will be augmented with a reasonable number of portable extinguishers located at strategic points as decided by Public Safety Service.

*Raw Water Distribution and Fire Hydrants:* Plans issued by the Construction



Kingston Steam Plant under construction, June, 1954. Size of construction area indicates scope of fire protection problem. Not shown are construction camp and thirty odd residences also on reservation.



**Tallest stacks, 300 feet high, give indication of size of structure. Considerable volume of welding and other A, B and C hazards are ever-present during construction.**

Plant Branch will be mutually agreed upon between that Branch and the Division of Reservoir Properties. Basically, however, such plans will provide:

1. Mains no less than six inches in diameter, larger as needed.
2. A looped system where practicable.
3. Protection of mains subjected to heavy traffic pressure.
4. Hydrants so located as to facilitate pumper connection; all-weather (gravel or chart) truck approaches to hydrants too far from roadways to make pumper connection from roadway.

When project hydrant installation begins, Public Safety Service will be advised and will work with construction forces in selecting exact location.

## WAREHOUSES

The warehouse and its contents is essential to the project. It must be given protection greater than most other construction plant buildings. The standard warehouse has a concrete deck and metal superstructures, siding, and roof. Fire hazards in these buildings may consist of:

1. Wooden bins, storage areas, and office partitioning.
2. Paper, cardboard, and other covering for stored materials.
3. Flammable stored materials.
4. Heating devices, usually a large coal or wood burning stove.
5. Disorderly housekeeping. accumulations of flammable litter such as flammable coverings from materials.

Indirect hazards may be created by:

1. Disorderly storage practices, too narrow aisles, restricted approach to flammables.
2. Improper handling and storage of oxygen and acetylene cylinders.

To minimize warehouse fire possibility, the following are established as standard policies:

a. Two 1½-inch water risers will be installed inside the warehouse, so located that a fire fighter with hose can approach to within ten feet of any portion of the interior. Each hose will be equipped with Navy all purpose type nozzle.

b. All wooden interior portions, including bins, storage areas, and office partitioning, will be covered with fire resistant paint specified as equal to the following:

"TVA Requisition No. 673595
Order No. P-52-925
Order Date: December 27, 1951
Consignee: TVA Shawnee Steam Plant
Articles or Services: Paint, or coating, pigment fire retardant, for use on all interior combustible surfaces. Alibi-R, or equal, in 5-gallon containers.
Material manufactured to meet military specification IAN-P-702, 'Interior Semi-Gloss Fire Retardant.'"

c. All warehouse employees will be familiar with the contents of the National Board of Fire Underwriters' issuance, "Fire Safeguarding Warehouses," available through TVA's Technical Library.

## SIRENS

The siren is an emergency device and will be used only as such. Installed sirens will be located where they can be heard clearly in all parts of the project. The siren control switch will be located in Public Safety headquarters. Installed sirens will be tested weekly on a day and at a time to cause a minimum of disturbance to the project.

## FIRE STATIONS

Fire stations and Public Safety Service headquarters buildings will be completed as soon as possible in order that equipment and personnel may be immediately available to answer fire alarms. Fire stations will be designed to provide adequate space for hasty boarding of the fire engine from either side and the rear. Ample storage space for hose, extinguishers, and other equipment will be provided. A hose drying rack of approved design will be provided.

## SPECIFIC HAZARDS

*Oil Salamanders:* These devices have caused scores of fires and several critical injuries. As far as is known, no oil salamanders are marketed at present which bear Underwriters' or other responsible testing laboratory approval. They should not be used unless absolutely necessary. If used, the installation must be approved by Public Safety Service.

*Welding, Cutting and Riveting:* Carelessness in the conduct of these activities cause many fires each year.

1. Fire resistant tarpaulins will be procured and used wherever necessary around such activities. (Non-fire-resistant tarpaulins constitute a hazard themselves, and will not be used.)
2. Flammable debris and litter will be kept removed from the vicinity of these activities.
3. Prominently identified portable fire extinguishers will be immediately available.
4. Portable gasoline pumps and other gasoline-powered machines will have a fire resistant tarpaulin or other temporary fire retardant roofing placed over them when it is absolutely necessary to use them in the vicinity of welding, cutting, or riveting activities. When not in use, gasoline-powered machines will be promptly removed from fire danger areas.
5. Cutting and welding equipment will be kept under constant observation by competent personnel to detect leaks and defective equipment. Defective equipment will be removed from use until properly repaired.
6. Oxygen and acetylene cylinders will not be stored in the powerhouse structure.

*Housekeeping:* Disorderly housekeeping, accumulations of flammable litter and debris is responsible for a number of fires each year. Yet, the rubbish fire is the easiest of all to prevent.

1. Trash and rubbish will be removed daily from the job. In areas of known hazard, it will be kept removed at all times.

*Electric Power Control During Fires:* In almost any building fire a certain amount of electrical hazard is present. This hazard is most acute in such buildings as cafeterias, electrically heated dormitories, and hospitals. When practicable, simple main switches should be provided for de-energizing during fire fighting activities. The electrical hazard grows more acute around transformer yards and as erection of the powerhouse progresses. Some construction employee or employees who would be on the job or easily available should be designated to de-energize such areas.

*Flammable Liquid Storage:* Such storage will be in accordance with suggested NFPA standards whether the units be small or large. Above ground tanks will be located away from possible explosion and radiation fire spread. Terrain drainage will be away from exposed facilities. Concrete dykes, equal to the capacity of the tanks, will be erected around the tanks unless the natural lay of the land provides such protection.

Adoption of the standards did not mean that all problems were henceforth and forevermore solved. Nor that there was no further necessity for coordination between concerned divisions or for field surveys and checks. Far from it. But it did mean that certain problems which had taken up untold hours and days of staff and field personnel time would be handled as an automatic process thereafter.

It is difficult, if not impossible, to accurately assess the direct value of surveys and standards. But the fact is that since the inception of formal surveys in 1948 there have been no large fire losses

(*Continued on page* 952)

# What Makes a Good Fire Department?

By PAXTON C. MENDELSSOHN, President
Board of Fire Commissioners, Detroit, Michigan

MANY things and, quite often, many years go into the making of an all-around good Fire Department. I have seen many small paid departments as well as volunteer units that have made themselves useful, efficient organizations. But let us eliminate the matter of size, paid or volunteer, and consider only the words titling this article—"What Makes a Good Fire Department?".

Let us also forget that I, who write this, am basically a Detroiter, have been in and around our Fire Department for many years and am presently one of its Commissioners. I make this remark because the ideas I advance are not entirely predicated on what we have or what we do in my town.

I have had the opportunity of visiting most of the so-called large Fire Departments, many of those of the medium size and many of those in smaller cities, as well as quite a few of the really small part paid or completely volunteer outfits. I have also inspected quite a few in cities of foreign countries. What follows, therefore, should be viewed as a composite of the good features of many Departments.

On my visits with Fire Departments and my conversations with their officials and chief officers, yes, and often with company officers and men, I have tried to remember the good features of each, and in like sense I have also tried to keep in mind those features that I considered undesirable—to be avoided. By such a process of using the good and avoiding the bad it is possible to develop, with patience, time and, of course, money a department at least better than it was. Many times it can be developed into a really snappy top-notch outfit. Frankly, I doubt if there exists today a so-called perfect fire department; there is always the possibility of improvement. But let us get on with the facts, taking each in turn, starting at the top.

## Administration

The top, of course, is the administration. There are many forms of city or town make-up, and fire departments may be managed by a City Manager, a Safety Director, who may or may not also have the Police Department under his jurisdiction, a Board of Fire Commissioners, or perhaps one or more full time paid Fire Commissioners. But no matter by what title, or how appointed or elected, an individual or a Board of several, such person or persons should first have had experience in administration either in a business or the legal profession or municipally. He, or they, should have had a prior interest in the Fire Department, and if with all this a person or persons can be found with a working knowledge of the Fire Department, as well as a pretty good schooling on the operations of fire apparatus and the uses of its tools, then you have a good start.

## Fire and Police Separate

And one more thought; do not try to operate both Fire and Police under the same administration. I know it is done, and I also know that no matter how good and intelligent the supervision may be, one department or the other sooner or later is going to suffer. The functions of Police are totally different from the operations of a Fire Department. They work different hours, they talk a different language, their duties and responsibilities are as wide apart as the poles—with two exceptions only—both are semi-military and both protect people and their property. But there again the functions are completely different. So if you can operate separately, you will have a better Fire Department and a better Police Department. And if you have a radio system, or contemplate adopting radio for communications, by all means keep separate fire and police radio systems—each to his own. When things start popping and both Fire and Police Departments get busy, each needs all the air for its own operations. If combined, somebody must get priority, and who can advise a combined Police and Fire Dispatcher what messages to transmit first and to which of the inbound messages he should give priority recognition. By all means, at least in the medium and larger cities, have your own Fire Department radio system.

The next division I shall take up is the Medical Division, namely, the Department Doctors. A Department can be no better than the health and fitness of its personnel. If the Department is large enough it should have its own staff of doctors, the number depending on the size of the Department, and if facilities are available, there should be your own Department Clinic for examinations when entering the Department, annual physical re-examinations, and for ambulatory out-patient treatment. Your doctors should respond—one or more—to all multiple alarms and also be available *at all times,* day or night, for any emergency. If the Department is not large enough to permit a permanent staff, then a working arrangement should be made with local physicians for such services. If you can, operate your own Fire Department Ambulances.

## Fire Fighting Division

Of course, the main and most important function of any Fire Department is the extinguishment of fires when they occur, which responsibilty naturally belongs to the fire fighting division; but even so the best fire fighting activity could not maintain low fire loss figures if it were not supported by the existence of a good fire prevention division under an alert fire marshal. The fire prevention division should maintain a continuous, intelligent program of inspections and enforcement of fire laws and regulations. And to produce efficient officers

Left to right: Chief Edward J. Blohm, Detroit Fire Department; Paxton Mendelssohn, President, Board of Fire Commissioners, Detroit; Robert Lubeck, of Detroit News.

and men, there must be a well equipped training school under experienced supervisors. There must be an adequate communications system properly maintained and intelligently manned, with sufficient dispatchers on duty at all times—not just enough to handle run of mine activities but a sufficient number to handle the extreme possible demands. The system must be kept in good working order, from the boxes on the corner, through the circuits, central office equipment, transmitters, gongs and recording instruments in fire stations, and telephones and radio equipment. All must be on the job all of the time, and emergency repair men must be on continuous duty with properly stocked radio-equipped vehicles to service promptly the system for any breakdown.

## Fire Prevention Bureau Important

With reference to apparatus, the best you can buy, after all, is only a piece of machinery, and any piece of machinery or mechanical device must be given proper maintenance and repairs when necessary. Therefore, a repair shop of adequate size for all your needs is an important factor. The shop should have facilities to repair motors, pumps, and all the other operating parts of the vehicle; it should be equipped to do machine shop work, "bump" metal, paint, do wood and cabinet work, including repairing of and building ladders; it should have hose testing facilities, electricians for servicing batteries and other electrical devices, a blacksmith shop and, by all means, it should be equipped with a hydrant connected to the city mains, a sump with plenty of water, and a testing booth, so that pumpers can be put through Underwriters pressure and drafting tests within the shop regardless of weather.

There are two more "behind the lines" services to complete this picture, namely, the maintenance of your fire stations and other buildings of the Department, and supplying them with their domestic needs, such as things to keep them clean and sanitary; and the proper maintenance of your hydrants and water supply. Actually this latter operation, although mentioned last, is way up at the top in importance as classified by the National Board of Fire Underwriters. In most communities the water system is supervised by a department of water supply, even to the installing and maintenance of the fire hydrants, but every Fire Department should have qualified officers who can determine the type of hydrants to be purchased and to have supervision over maintenance, as well as deciding number to be installed and the proper location and spacing of them.

Frankly, most of what I have mentioned is based on the requirements of the larger departments, cities of 100,000 and over. But all of the functions can, of course, be scaled up or down to meet your conditions. I know many Departments could not possibly afford all the facilities I have included. However, I do believe all such services are essential for the operation and maintenance of a good Fire Department and where they are not available within your department, it is possible to procure any of the required operations if and when they become necessary through stand-by arrangements with local concerns capable of supplying such services.

## Buy Good Apparatus

Remember, I am trying to describe what I consider a top-notch, Grade A Department, therefore, it is assumed the fire prevention division has ample inspectors to cover your territory, enough for regular and continuous inspections of stores, factories, schools, hospitals, hotels and all the other occupancies that should have regular inspection, including a night shift for theatres, night clubs, places of public assembly, etc., not to forget inspectors to investigate special complaints. Let us not overlook a chemist with a laboratory and a photographer with a dark room. Also let us assume that all fire companies have the minimum required manpower for both high value companies and residential units as set up by the National Board of Fire Underwriters, and that your Department has the necessary clerks in your headquarters administration staff, not firemen detailed but paid clerks, stenographers, etc. Let us also assume that your Divisions have enough men of each trade, including the various things to be done at the shops, line crews and repairmen in communications, and all the way down the line.

When you have all these you are quite well organized. But one still must have an *up-to-date* set of rules and regulations. Rules should be carefully compiled, workable and fair, and then they should be neatly bound in a size so that each member of the Department can have his own book and know what is required, and what is not allowed. Finally, your officers and administration should enforce these rules with reason and common sense; and thus you are on the way of having discipline and a well ordered department whose personnel should have what is known as "esprit de corps." Let us add to this proper uniforms, so that all dress alike and can be recognized as members of the Department—even work clothes while on duty can be inexpensive, but all alike and neat.

And lastly, give your men good clean fire stations to work and live in, maintain them in good condition; and get your men as much money in salaries as it is possible to pay, because the amount of the pay check is a big factor in keeping a good fireman a good and satisfied member of your Department. It all counts in the final score. When I find a good fire department, it is almost unnecessary to look at the salary scale; salaries are generally good and bear some relation to living cost standards; but when one runs across a mediocre outfit, you can almost be sure the personnel is underpaid.

And when you have all this, add one more little touch that costs nothing: members should give a military salute to their superior officers and department officials when receiving an order, and should receive a snappy return. And when a chief officer, or a department official enters quarters, officers and men should salute. Sure, this has nothing to do with putting out fires but you would be surprised to know how much it does to keep the spirit of your department snappy. This is something that costs nothing, is available to all—large, small, paid or unpaid, volunteers—but it has an influence in putting a department up near the top.

## Auxiliary Equipment

Having mentioned at least briefly all the things that surround the fire fighting division, I will now attempt to leave some thoughts about one of the major factors of any Department. It is the apparatus, auxiliary equipment, and the tools, including hose that administration and chief officers make available to the fire fighting officers and men. It is a most complicated subject, can be very controversial, and is affected by the size of the department, the hazards and occupancies of the community, the climate and, lastly, in this instance quite often

(*Continued on page* 953)

"While we're here, might as well pick up the garbage . . . save us a trip next week . . ."

Courtesy of The Vancouver Sun

**West Vancouver, B. C., police were recently asked to "double in brass" by serving as firemen, too. Cartoonist Norris of The Vancouver Sun portrays a situation which may become common if the dual service plan is adopted.**

One type of "extra-curricular" job to which no fire fighter objects. Left: Benton Harbor, Mich., fireman administers oxygen to Carol Sue Jones, age 8, an estimated ten minutes after she had fallen into a concealed pit and her head had been covered by two feet of sand. Right: Fire department officer carries Carol to safety after frantic digging released her from cave-in. The entire operation took 30 minutes.

# Tasks for the Fire Service Continue to Grow in Number

## A Study of Asset and Liability Values of Extra-Curricular Activities by Fire Department

A STAFF REVIEW

*Editor's Note:* **Back in 1951 FIRE ENGINEERING published a study captioned *"Extra-Curricular Demands on the Fire Service Are Increasing."* This study proved helpful to many fire departments faced with the question of just how far can, or should a fire force go in meeting the non-fire appeals of the citizens it serves. Since that time, the Editors have continued to receive accounts, some humorous, some tragic, of tasks performed "beyond the scope of normal duty."**

**In 1952 the Editors made another effort to review the subject primarily with a view to securing opinions from a representative cross section of fire chiefs on certain major questions relating to this subject.**

**This report is a condensation of that survey, plus certain additional information taken from the files of FIRE ENGINEERING, and from the annual reports of a number of fire departments, large, medium and small, scattered throughout the country.**

**As in his previous message, the author makes no attempt to decide controversial issues of who shall do what, and when, and where. He leaves it to the reader to interpret and use this information as he deems best.**

"CALL the Fire Department!" Since 'way back when, that has been the first reaction on the part of the man-in-the-street in time of not only fire emergency, but almost any kind of major or minor catastrophe.

This inclination to pick on the fire service, rather than police or any one of a half dozen other municipal agencies in time of need often imaginary, has apparently not moderated with the years. Rather it has accelerated, if we are to judge by the annual reports of representative fire departments, and by the comments of heads of such organizations, professional and volunteer.

Perhaps this is a concomitant of our hectic, fast-paced existence with its changing living and working conditions. Perhaps it is merely a manifestation of an apparent willingness of the public generally to load upon municipal government increasing burdens of service. Perhaps it is the failure of city and fire service management to educate the public to the primary functions of a fireman and a fire department, and to "sell" that public on the wisdom and necessity of leaving to the fire fighter the business of preventing and extinguishing fires, and that only.

Three years ago, in a study made by the author, it was pointed out that people do turn to the fire department upon the slightest excuse and, as a result, firemen are called upon to perform many and varied jobs quite distant and apart from their normal calling. The statement was made that study of the day-by-day business of the average fire department will show that these "extra-curricular," or side-line activities, sometimes occupy more of the fireman's working time than the actual business of extinguishing fires.

Since that report to the readers of FIRE ENGINEERING (Aug. 1951), the author has received additional information bearing upon this problem, for problem it is, out of which some further conclusions may be drawn, both as to its effect on the fire service but also upon the communities served by fire forces.

The first is that the requests, and demands upon the fire service for extra-curricular operations have been increasing and show signs of growing. This increase is noted in both the variety and number of services.

The second is that these added calls "beyond the field of normal duty," are having certain repercussions, not always favorable, upon the fire service, the

Fireman serves as utility man. Fire fighter Fred Kiefaber, New York Fire Department, shuts off the gas and electricity in the flooded basement of 159 West 71st Street, after a water main burst and flooded the basement.

This pup can't be blamed for having that "hangdog" look. Both rescuer and dog are a mess after the pooch was removed from a 14-inch sewer in Louisville, Ky. Fireman Robert Grayson won the doubtful honor of going after him when he proved the smallest fire fighter answering the rescue call. The pup has been nicknamed "Cesspool" and has been adopted by the firemen.

The Philadelphia, Pa., fire department was called upon to rescue two boys stranded on the face of a cliff. They used an 85-foot aerial to effect the rescue. The younger of the two boys became frightened while descending the incline, and his older companion was unable to help him up or down. Picture shows the two youngsters being helped onto the ladder.

Rescuing locked-in children is a task which most fire departments have encountered. The youngster shown here locked herself in the bathroom, and the Pasadena, Calif., fire fighters eased the mother's anxiety by promptly releasing the little girl, age 3.

Hot under the colander! Greg Boswood, age 14 months, of Oklahoma City, Okla., stuck his head through a colander while playing in the kitchen. His mother tried unsuccessfuily to get the colander off. She called the fire department. District Chief Haskell Graves did a quick job with a pair of pliers.

local city government, and the public at large.

The third result, of the information gathered, indicates both fire service, government and public don't seem to know quite what this is all about, and no one apparently has any comprehensive idea or plan to clarify the issue, and solve it, with satisfaction to all parties concerned.

We will dwell further upon these findings at the conclusion of this study. Let us first get a proper perspective of conditions as we find them today.

## Demands and Service Increasing

Calls upon the fire service, both permanent and volunteer, as we have said, are on the upswing. In some departments these non-fire-fighting calls outnumber those for actual fire duty. In many departments the time devoted to these extraneous services exceeds that of fire extinguishing. Concurrently, the costs for all these non-fire operations are showing a steady increase.

Further analysis indicates that, in the cities at least, a large per cent of these extra-curricular activities being performed by the fire department are nominally the responsibility of other branches of local government, and should rightfully be handled by those other services.

Queries as to how this condition came about elicit different reasons and excuses. In general, the situation seems to have "just growed," like Topsy of "Uncle Tom's Cabin." These different reasons have been advanced:

1. It's a hold-over from former chiefs and policies.
2. It's become a custom and we hate to make an issue out of it.
3. Except for police, none of these other municipal services are "in business" Sundays and holidays. Who can give any satisfactory service (on certain out-of-the-way operations) except the fire department?
4. Whether we want to or not, we're equipped and trained for that kind of Work—so why not do it, and get credit?
5. Passing the buck, except where there's some agency ready to handle the job (as in the case of public utilities) won't help our case at all, in fact, may lose us friends.
6. Other municipal agencies are just as short of manpower and facilities as the fire department. Many of our emergency operations require radio, which only police and fire have got. And since police are lacking other essential equipment, we might just as well handle the job.
7. We'll have to wait until the city fathers reach some basis of understanding on "who'se going to do what—and for whom?" Right now, the bee is pinned on us; we don't want to make an issue of it, and neither does the city.

One progressive fire chief, Edward C. Wischer of Milwaukee, Wis., said: "The fire department has been called upon in recent years for help in emergencies which were formerly considered the work of other organizations. Some of these tasks are:

1. There has been a great increase in chimney fires due to lack of chimney cleaning by occupants. The old occupation of chimney sweep seems to have died out and people do not seem able to learn that keeping chimneys clean is a fire preventive action and for their own best interests.

2. We have had to remove cats from trees, birds caught in trees or wires, animals trapped in various ways. This should be the work of the Humane Society, but the department is often called.

3. Removing snow from hydrants in winter. This should be the duty of the Department of Public Works, and not the responsibility of the Fire Department. It takes men away from quarters at a time when manpower is needed.

4. Removal of trees blown down or fallen down, when blocking thoroughfares. This should be the duty of the Forestry Department, but we are called to clear the way. It has been necessary to add chain saws for cutting up trees.

5. Wires down. This should be the responsibility of the Power Company, but we are often called. It often requires the presence of firemen many hours until electric company personnel arrives. The public is being protected, but I believe this service could be provided in some other way.

Chief Wischer adds other "emergency" operations performed by his department which possibly could be attended to by other agencies. These include unlocking doors for occupants who have forgotten keys; removing children from locked rooms and in situations where they have been caught in drains, fences, etc. Another job wished on the department which might possibly be undertaken by others, is removal of icicles and snow from gutters and roofs.

Chief Wischer, like many other fire department administrators, does not refuse a necessary, or urgent request for service when it is impossible for the person, or company requesting it to get help elsewhere.

A point made by several chiefs is that they do not mind responding to what they term "rescue calls," no matter what kind of rescue is involved. It is the irresponsible, silly and frequently unnecessary requests that get them down. Sometimes these come from persons high in the local political tepees—or someone who is a friend of a friend of Mr. Local Bigshot.

In one city, a fire chief found himself in extreme difficulties as a result of refusing to respond to a request from a locally prominent citizen who sought to have his cellar pumped out, after a heavy rainstorm. The request was referred to the Street Department, which normally attended to such operations, but owing to the fact that its limited supply of portable pumps was engaged at the time the call was referred back to the fire department. This chief's excuse that he had no reserve pumpers or portable equipment for such operation brought about a wrangle which ultimately found its way into the press, with unhappy results for all concerned.

This and similar instances indicate that it is not always possible to estabish the job occupations to be performed by the fire force. Also, there can be no hard-and-fast rules, as one chief puts it. "You've got to weigh each out-of-the-ordinary request on its merits, and be governed accordingly," he believes.

Rescue is a service which most of the chief officers interrogated believe should be performed without question by the fire service. But when it comes to defining what it meant by "rescue" there is not so much unanimity of thinking. A number of officials look upon rescue as first aid. The majority, however, take a broader viewpoint.

Not every fire department has a rescue squad or emergency unit, equipped and trained for the saving of life in the wide field of emergencies, such as drowning. Many lack even a first aid squad, let alone boats, and there are numerous fire departments whose members have never taken even a basic first aid course of training. Yet some of these departments are being called upon to give first aid, and even to pit their scanty knowledge, and limited facilities, against an unusual and perhaps critical emergency possibly involving life.

The evidence in hand would lead to these observations:

1. Requests for what may be termed "regular" as well as extra-curricular or "irregular" fire department services are on the increase.

2. A large percentage of these requests might otherwise be handled by other local or nearby agencies.

3. There appears to be no clear-cut definition of what constitutes either normal, or out-of-the-ordinary emergencies, including rescue and first aid, in many municipalities.

4. As a corollary, the responsibilities and duties of the fire department for meeting these situations have not generally been defined locally (it is admittedly a local problem) by top level management.

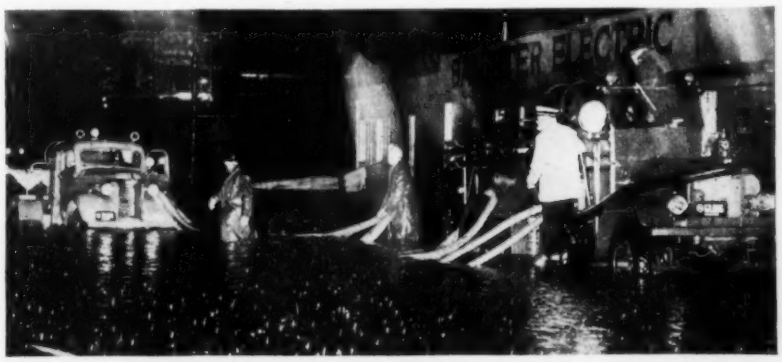
5. Finally, the condition may be expected to grow progressively worse.

One other important detail concerning the foregoing should be mentioned. That is the relative effects such service requests have on volunteer and full paid departments. In general, extra-curricular requests are greater, and more varied according to population, in the smaller places having volunteer fire departments, than in the cities wherein are not only full paid departments, but other well staffed and paid local municipal agencies, such as public works, water, sewer departments, and so on. Logically, a city so equipped is in a position to definitize special-service requests and allocate them so the fire force is not overburdened. But in the smaller places, where "everyone knows the chief," and the volunteers personally, the problem of where and when to draw the line may prove a headache for the heads of department.

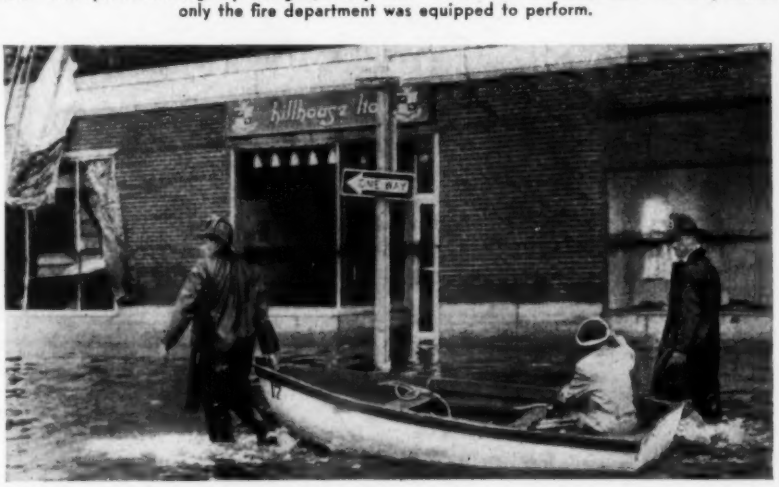
The situation is further complicated by the fact that the volunteer department may be lacking in facilities necessary for meeting certain emergencies.

On the other hand, many volunteer departments possess unusual assets in the person of members of the organization who are trained and fitted for meeting special emergencies. This does not mean that professional fire forces lack skilled specialists, but the bigger their department, the more difficult it may be to place them where their talents will prove of greatest value.

One other point has impressed the writer: that is the lack of specialized training given officers and men of fire



No shortage of water here. Firemen of Pittsburg, Calif., use pumpers to check rising waters in an underpass following a prolonged, heavy rain. This is an "extra-curricular" activity which only the fire department was equipped to perform.



Couldn't be classed as fire fighting, but the fire department was called into action. During a flood in downtown Providence, R. I., firemen were summoned to rescue marooned pedestrians. They are shown here giving a lift to a lady shopper after she was trapped by high water.

departments to fit them for the unexpected crises which might face them when they are off duty, as well as on shift. There can be few things more embarrassing for a local fire department than to have one of its fire fighters (particularly if he is in uniform), confront a dilemma such as are bred by emergencies, and not be able to come up with some sort of satisfactory solution.

Fire departments are being trained in first aid and, to some extent, in the field of safety, but it is indeed rare to find in the average fire school and college curricula courses of training on meeting "unscheduled emergencies." A few trite examples may illustrate the point we are trying to make.

Most of us have heard the classic example of the cow that fell in the well, and how after hours of fruitless trying to lasso the beast and lift her to the surface, or find some other method to save her, a smart volunteer fireman suggested they gradually fill the well with water, and Bossy would come floating up—and out. They did—and she did.

The use of common soap, and soapsuds, has released many a kid's finger (and man's too) out of a tight anchorage—and incidentally, pulled firemen out of a tight spot.

Youngsters are continually getting themselves in jams. They poke their feet into narrow places—water-meter boxes for instance. It was enlightening to see a fireman who was called in one such case after the parents had struggled frantically to release the victim, get Junior out of his trap in a few minutes by pulling his foot out of the shoe which was wedged in the pipes.

Extricating a fishook that has snagged in someone's skin is normally a job for the doctor or surgeon. But firemen are often called to cope with such situations (or they run into it, while enjoying their favorite hobby). Usually the hook can be pushed further so that its point and barb emerge through the skin. There the barb can be nipped off with wire cutters or pliers; then the hook easily extracted. But it takes know-how, and a bit of equipment.

Many "extra-curricular" calls are the result of panic, which strikes so many persons when some out-of-the-ordinary crisis crops up. And frequently fire fighters themselves don't know what they are going to be up against until they reach the scene. Then the case may call more for ingenuity than special equipment or prescribed methods.

Such was the occasion when an old man fell in front of a heavy bus and the front tire of the bus came to rest, pinning the man's foot. No jack powerful to raise the front of the bus could be brought quickly to the scene. But the quick-witted fireman blocked up the front axle, and released the air from the bus tire. The man's foot was removed without further injury.

These are just a few examples of ingenuity required to meet some of these unexpected emergencies. Some are illustrated and listed in this study.

## New Tools Needed for New Extra-Curricular Operations

A question closely related to that concerning the increase in special emergency requests was also asked of a representative cross-section of fire chiefs. This was: Had they found it necessary to add special tools or equipment to facilitate handling these out-of-the-ordinary tasks—and if so, what sort of facilities.

It was logical to assume that if the calls for help of one kind or another were on the increase so, too, would the search for new and special tools to help fire fighters cope with the problems presented. This was found to be the case. New equipment is continually finding its way into use by the fire service. Some of these innovations have been described in this Journal (see Short Cuts & Gadgets); not a few are found in the advertising pages.

Among the major equipment reported added to broaden these added extra-curricular services are: iron lungs; boats, grapling gear and outboard motors; power-cutting units, pounding, breaking, trenching equipment; siphons and other dewatering devices; portable pumps of all kinds; salvage covers (including plastic, aluminum-asbestos, etc.) wrecking machinery; respiratory protective devices (capable of underwater use); power and lighting facilities; communications systems; medical and surgical equipment, some of strange to the fire service.

Servicing of these special calls has not only witnessed the introduction of new gear, but it has resulted in a widening use of what we might call " standard gear," i.e.: ropes and tackle; ladders; forcible entry tools; smoke and air movers, fans, circulators, etc. This may account, in part, for the tendency to load fire apparatus and rescue units to their extreme load capacity.

Perhaps the best indication of the special, and regular emergency equipment carried by the modern fire department is to be found in the inventory of the rescue, emergency and special utility trucks, the number of which is continually growing.

Inspection of these units discloses many unusual devices indicative of the ingenuity being displayed by those municipalities which believe it incumbent upon them to answer all "extra-curricular" pleas, however irrelevant and apparently trifling.

## Chiefs Weigh the Values

This brings us to the final and perhaps most important question of all in this study of extra-curricular operations: What do top officials think about the wisdom of lending help in "emergencies" which have little or nothing to do with fire protection or fire fighting? What are the asset and liability values of such operations?

In the main, the several score fire departments interviewed accept the calls for these special services, albeit some with reservations.

There are two prime reasons given for so doing: the first is that the fire department is a public emergency service, created for and maintained by public funds. The second is the good will which many fire officials believe is engendered by the undertakings.

As one New York chief put it: "It seems to me just plain good business to have the citizens of our community turn to the fire department for help in what they term an emergency, even if we don't call it that. That term 'emergency' is pretty elastic. One person's 'emergency' may be another's imposition. Yet how are we to refuse the request and keep face? By the very nature of our calling we firemen are going to be asked to perform these extra services. I believe we should do so."

A British Columbia fire chief makes

**Rescue work has become an important phase of fire department activity. Shown here is the rescue of Ernest Knox, of Brownsburg, Ind., who was dragged unconscious from a gas-filled well. He was trapped, and overcome by gas, but kept alive by firemen who used a resuscitator on him for 25 minutes while rescue operations were carried out.**

this point: "The fire department is essentially a public service, and I believe they should be called upon to help in emergencies. However, special funds should be provided for this specialized service and it should not be supplied at the expense of the regular fire protection measures."

A Delaware chief adds this: "I sincerely believe that our department should do everything to benefit the welfare of the community, although its action might not be directly concerned with the saving of life and property. As long as we are not competing with private enterprise and the lives of the men and the property of the fire department are not in jeopardy, I will encourage any and all activity beneficial to the community."

A number of chiefs qualify their approval of the practice; for example a Vermont chief says ". . . the department should lend help when the emergencies arise, but not to the point of using fire pumpers to pump flood water." This chief would use his good pumpers only if conditions endangered life and property" but like many others, he is opposed to running the risk of damaging costly equipment that may be vitally needed for the more important work of controlling fire.

Retired fire chief Paul Heinz of New Haven, whose department has become favorably known far and wide because of its good work, had this to say: "The fire department should lend itself to this work. It is an excellent" public relations activity, plus good advertising for the department and helps to create a higher degree of morale throughout the department. Since modern apparatus is radio-equipped, this service does not hamper or retard the fire fighting efficiency of any department.

We have already quoted Chief Wischer of Milwaukee. Speaking of the wisdom of performing this extra-curricular work (which his department tries to do, even though sometimes distasteful) he says: "I do not believe the department should be called upon to perform duties not related to the fire protection and prevention needs of the community. The department is created for the specific purpose of fire fighting and fire prevention with personnel allocated to apparatus in accordance with the standards established by the National Board of Fire Underwriters for this specific purpose. Extraneous duties, in my opinion, draw upon the weaker manpower and thereby weaken the department for its original purpose."

Seven pumpers, including the one from the Naperville, Ill., Fire Department, shown above, pumped some 44 million gallons of water from a 50-foot-deep quarry pit to recover the bodies of two youngsters, ages 6 and 3 years. Though not fire duty, it was a service that could not be refused.

A laundry chute, which tapers in size, is easy to get into but hard to get out of—a fact which Paul Nelson, age 12, of Minneapolis, Minn., learned the hard way. Firemen made quick work of the rescue.

A number of volunteer fire chiefs also expressed displeasure over certain special services requested of their department. Their reasons have some weight in the volunteer field. They maintain it takes men away from their regular job, complicates their employment problems, subjects them to injury and/or ridicule and keeps fire units out of service (where no radio is available). On the other hand, a larger number of volunteer officers, particularly of departments where public funds are solicited for the purchase of equipment and apparatus, go all out for all extra-curricular activities. It means a "direct or indirect cash return to us," according to several of them.

## Some Conclusions

From the foregoing material, and the volume of other essential data for which space is lacking, it is possible to draw some helpful conclusions. For the sake of brevity, these are listed under "Asset Value" and "Liability Value."

### Asset Value

1. The saving of life and/or property, prevention of accident, or serious after-affects of accident. There appears to be no close demarcation between many life-saving and rescue services and those where life may be threatened.

2. As a public service organization, the fire department is expected by citizens to come to their aid whenever in the eyes of the citizen he faces an "emergency." Failure to do so (regardless of the right or wrong of it), may have unfavorable repercussions.

3. Where there are other municipal services available to rightfully take over some of these extra-curricular duties, no doubt they should do so. But if for any reason they cannot, or there are no outside local agencies available to do so, many chiefs believe the fire department should give service.

4. It is true, shortage of manpower presents a problem where non-fire duties are loaded on a department. However, where apparatus and department are radio equipped it is now possible to attempt many more tasks, and still keep the units in service, than before radio. A number of chiefs point out that this is a local problem; that each chief and each department must operate depending upon local limitations and facilities. It is up to each chief's respective position as to manpower, equipment, etc., and what he thinks he can afford to supply over and above the necessary functions connected with fire safety in his particular city.

5. There is a definite "cash value" in meeting some of these extra-curricular demands. This is particularly true in the volunteer field, where the public's participation is essential for financial support to the fire department. Many paid, departments, also, have been rewarded financially by some "good deed" done a person or concern in trouble.

### Liability Value

1. Willingly or unwillingly, there is a tendency to take on added activities which are not directly connected or concerned with fire fighting or fire prevention. These duties are not always compatible with the purposes for which the local fire department was organized and maintained.

2. Most municipal fire departments today are undermanned and equipped to capably perform all the multitudinous extra-curricular jobs that citizens can dream up.

3. It is true, many of the tasks asked of the fire department should be the duties of other municipal agencies or public works. Often there is confusion—even ill-feeling—between municipal agencies over these operations.

4. Unquestionably, these unscheduled and unlisted operations present a hazard to fire fighters and to their equipment. Firemen have been killed and many injured in performing these extra cur-

(*Continued on page* 971)

# Should Firemen Be Permitted to Hold Outside Jobs?

## Here Are the Pros and Cons on a Controversial Subject

DURING World War II, when there was a severe shortage of manpower in defense and other industries, many municipalities relaxed rules prohibiting paid firemen from working for pay in private employment during off-duty hours from the fire department.

Since the war ended, only a minority of the cities have reestablished the ban on outside employment. Most communities which continue the practice of permitting dual employment do so on the ground that fire department salaries have not kept pace with the pay in industry. Some admit that enforcement of the ban is impossible.

To get a cross-section of practices throughout the country, a large group of progressive Fire Chiefs were invited to participate in this symposium, which discusses the various phases of dual employment by firemen.

### Advantages

Some of the advantages of permitting off-time work, cited by participants are:

1. Outside employment brings the pay of firemen up to that given by industry.
2. Men are better satisfied, are more contented.
3. Morale of the force is improved.
4. Men are generally found to be in better shape physically.
5. Less resignations from the fire department.
6. Easier to get new firemen.

### Disadvantages

1. Men may return to fire department from private jobs fatigued.
2. May deprive others of jobs.
3. Where firemen do contract work on off time, they may create unfair competition by underbidding regular contractors.
4. Men may be injured when working on private jobs, and the city may be the loser.
5. Public reaction may be unfavorable.
6. May create disgruntled fire department employees among those engaged in other than fire fighting activities and who must put in eight hours work daily for the week.
7. Provides an excuse for city administration to deny pay raises to firemen.
8. Should a recession occur, with considerable unemployment, firemen would probably be forbidden to hold dual jobs; they would have only their low fire department salary, and they could get no increase when times were bad.

This symposium provides an interesting study of one of the most controversial problems facing the fire service today. Comments of those who have participated in the discussion are given below.

### TORONTO, ONT.
### Joseph Waterman, Chief

The Rules and Regulations of the Toronto Fire Department are covered by a City By-law, Section No. 33 of which reads as follows:

"Every member of the department shall devote his whole time to the business of the department, and is expressly prohibited from being engaged in, employed in or giving his personal attention to any other business."

During World War II, firemen were permitted to engage in private jobs on off hours, due to manpower shortage. However, the policy of this department today is that no fireman shall be permitted to accept any type of work on his off-duty time.

This order has been hard to enforce due to the fact that no disciplinary action can be taken without positive proof that a member is committing a breach of the Rules and Regulations of the Department. Repeated notices have been forwarded to all fire stations, from time to time, warning personnel that any infraction of the Order would mean instant dismissal, and on August 17th of this year, a fireman, with seven years' service, was apprehended while working on his off time and was dismissed instantly.

I do not feel that there is any justification in permitting firemen to hold outside jobs even though the salaries of firemen might lag behind those paid in private industry, as I feel that there would be disadvantages in permitting such a practice. No fireman can work all day on a private job and then report for night duty at his station and be in top physical condition to fight fires. Pumpers responding to fires are manned with four men and if one of those men has worked all day, actually the other three have to carry him as he cannot give his utmost to his end of fire fighting after having worked all day on another job. Then, again, if he is engaged in private work, he may injure himself in the performance of such work, the symptoms of which might not become evident until he is fighting a fire, then the injury becomes the responsibility of the municipality concerned, supposedly being "injured while on duty," and this could run into sizable medical bills.

### ROCKFORD, ILL.
### Wayne E. Swanson, Chief

This situation of firemen working on their off days was created during World War II when there was a very severe manpower shortage. Personnel men and employers besieged our fire station with their request for personnel, and the rule preventing any firemen from working on his day off was relaxed through an agreement with the Chief and the Board of Fire and Police Commissioners.

Our salaries are considered in line with those paid in industry, and I do not feel there is any justification for firemen working and holding outside jobs. I am definitely of the opinion that cities should pay their firemen a just wage so that working on the off-time is not necessary. We have an agreement with the unions of our city that when the manpower situation gets to such a low level that firemen are taking jobs away from others, our men will cease to work on their day off.

We do not allow our men to work in hazardous occupations such as running machines, working as bartenders, or any other occupation that might be considered hazardous. All men who work in the building trades must naturally carry union cards and the business agents of these trade unions will control this situation when it becomes necessary.

### EL PASO, TEX.
### H. A. Davis, Chief

Upon my recommendation and with the approval of the Civil Service Commission, firemen are permitted to work on their time off.

It is my opinion that when firemen are permitted to add to their incomes, they are inclined to be better satisfied.

Some of the outside work in which firemen engage is instrumental in giving the firemen a better knowledge of the streets, buildings, etc. This, added to the fact that they are better satisfied, as stated above, is an advantage. In the event that a man engages in hard work or long hours, he would not be physically or mentally alert in his duties as a fireman. This would be a definite disadvantage.

We try to maintain strict regulation as to the type of work, the number of hours it requires and as to whether firemen engaging in such work would prevent outsiders gaining employment.

### SAN FRANCISCO, CALIF.
### Frank P. Kelly, Chief

The Rules and Regulations of the San Francisco Fire Department prohibit all members "actively participating in any other gainful occupation."

This rule is being enforced.

We have had violations but have no trouble in stopping the practice without disciplinary action.

I can see no advantage in permitting this practice. The disadvantage lies in loss of public goodwill for the entire department.

### LAKELAND, FLA.
### C. M. Deal, Chief

This department at the present time is permitting firemen to work on days off to supplement low salaries.

While I do not feel that we should infringe upon the rights of the off-duty man too much, our departments would be more efficient if we could keep the interest of the firemen to their duties in the departments.

I compare firemen who occasionally work on days off, and those who hold regular jobs on days off, to a married man with children. If he steps out occasionally very little harm is done, but when he makes it a regular occurrence, harm is done to the family. The same is true with fire departments.

When we can pay firemen a living wage, I do not believe we will have any trouble keeping their interest in the department, but until we can, we will have to grant the privilege of working on days off to hold the good men we now have, and to attract new men.

### SACRAMENTO, CALIF.
### Terence Mulligan, Chief

It has been the experience of this department in the past that maximum degree of efficiency cannot be obtained if the personnel has shed its alertness and energy in some other field. During a period of greater alarm fires it would be with the greatest difficulty to retrieve a satisfactory amount of personnel in which to engage such fires.

### HAMILTON, OHIO
### George Schlotterbeck, Chief

Members of the Department are permitted to take private employment when off duty, as long as it is not permanent, so long as it does not interfere with any of the Department's efficiency, and also that the men are available for call at all times.

We have a City Manager with a Charter form of government, and although there has been quite a lot of controversy in City Council concerning this matter, the Manager, as yet, has not prohibited outside work, and I, of course, am following the same procedure.

Where salaries are concerned, I do not feel that the men are justified in holding outside jobs, because by so doing, they are lowering their working standards by having two incomes.

This also causes friction with the public, labor organizations, and City Council. By the men limiting themselves to the Fire Department work alone, they are in a much better position to ask for and receive an increase in salaries, and other benefits.

### PITTSBURGH, PA.
### Stephen P. Adley, Chief

During World War II our men were permitted to take positions in defense industries during their time off. This condition prevailed even during some of the post war years. Our policy today is not to permit such extra employment and there is very little of it in Pittsburgh.

City of Pittsburgh firemen's salaries are among the highest at present. Many other industries are working only part time at the best.

We have had a minimum of complaints regarding our personnel taking private employment.

### PEORIA, ILL.
### Sidney L. Ulrich, Chief

During the war, men were permitted to work on their off time, although the rule book forbade it. The ruling was lifted at that time and has never been put back in force again, although serious consideration is being given to an enforcement of this rule again.

Quite frequently, the men get more interested in their off-day job than they are in their fire service job. They often come back on duty all tired out and complain because they cannot go to bed and rest up, I suppose. Then there is the factor of getting hurt on their off-day employment and shifting it on an "accidental" slip while on duty, and the city is stuck with an injury.

We had a situation whereby the local unions, who had given firemen permits to work, came back to us later and wanted us to order the firemen not to work. In these cases, I refused to do this, for while work probably was getting a little scarce in those particular trades, I was not going to pull their chestnuts out of the fire, so the trade unions could tell the boys it was me who was making them quit. I advised them to cancel their work permits and when this was brought about, the men could not continue to work without a permit, and it would be their responsibility, not ours.

Under normal conditions and unless it is an emergency, I do not believe firemen should work on their off-time at regular jobs. If they want to be bricklayers, carpenters, machinists or the like, let them work at that and give up the fire service in full paid departments. If they want to be firemen, then be firemen and not be taking employment away from other men of other trades.

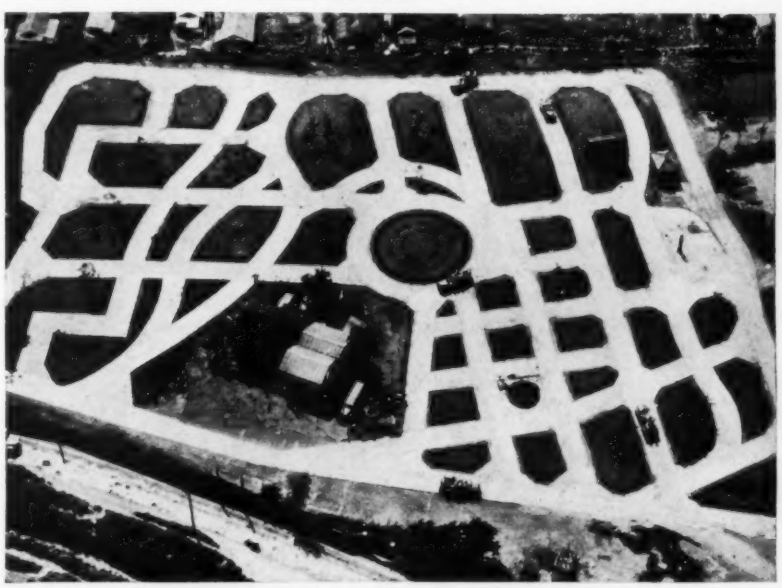
### JACKSONVILLE, FLA.
### F. C. Kelly, Chief

Our men were permitted to take jobs with private concerns during the war. This is still permitted.

With salaries of firemen lagging behind those of private industry, I feel that there is justification in permitting the men to work on "outside" jobs. This is almost necessary so that we can keep our men, and not have them resigning to take other employment.

Advantages of such a practice are primarily all in favor of the men. They add to their income, thus enabling them to better meet the increased cost of present day living. And it does reduce the number of duns from creditors which come into the Chief's office. Then, too, by being in better financial condition, their spirits are higher.

But—it has definitely hurt the efficiency of the Department, for unless they are on outdoor jobs, they have no time to maintain their knowledge of their territories and the geography of



**Street maze aids in training Tokyo fire apparatus drivers.**

Resembling a waffle iron or a Picasso painting, this maze of streets was specially constructed as a training ground for fire apparatus drivers in Tokyo, Japan. The drivers race their units around the curves and corners to develop skill in high speed, safe driving. The only downtown traffic condition the plan fails to provide for, however, is dodging the erratic Tokyo taxi drivers.

the city. A few have even assumed the attitude that the Fire Department job is secondary, but I am glad to say this type are in the minority.

## YONKERS, N. Y.
### William C. Garvin, Chief

Our Rules and Regulations forbid members of the department to hold outside jobs. If they do, they are suspended indefinitely by the Commissioner of Public Safety.

Salaries should be adjusted so that a man will not have to hold two jobs in order to earn a living.

There are no advantages. Disadvantages are the possibility of being injured and tired personnel reporting for duty.

## BINGHAMTON, N. Y.
### Frank J. Buckman, Chief

At present members are permitted to take jobs in private industry when off duty. But as unemployment rises, this practise will probably be discontinued.

There is a justification for this policy, due to the fact that when living costs increase, municipal and government employees are generally the last ones to be given an increase in wages to meet the cost of living increase.

When the firemen are permitted to work, they are able to earn enough to properly maintain their families and it makes them more contented employees.

Occasionally some firemen might get hurt and not be able for fire department work. Then the Department could suffer the loss of manpower.

## SAVANNAH, GA.
### Walter S. Blanton, Chief

During World War II, labor was so scarce and the salaries in the fire department were so low that I permitted the men to work on the outside with the understanding they did not let the outside work interfere with the fire department jobs.

I still permit it as the men are still making hardly enough to exist.

I feel there is justification in permitting them to hold jobs, because of low fire department salaries.

The advantage is to keep the men from resigning their Fire Department jobs and taking positions elsewhere. The disadvantage is that so many men will give more consideration to the outside job than they do to the fire department job. As soon as the City officials can possibly increase the men's salaries to a living wage, it is my intention to stop them from working on all outside jobs.

## LANSING, MICH.
### Charles H. Decker, Chief

The members of our department are permitted to accept employment on their off duty hours in the Greater Lansing area. At one period in the last eight years this was not permitted, and the ban on off-duty working was very difficult to enforce.

The City of Lansing does not compensate firemen for extra duty, such as large fires, inspections on off-duty time, off-duty instruction, demonstrations, etc. However, we are very fortunate in having practically 100 per cent prompt response for a large fire or disaster and extra-curricular programs. The members of our department can always be depended upon for charity drives and community welfare work.

Besides limiting the off-duty work to the Greater Lansing area, all members must file the address and telephone number of the establishment they are working for so they may be contacted at once. This has proven to be an excellent arrangement; and we have received no criticism from business or industry.

During the period when off-duty working was not permitted, much criticism was advanced by some of the members of the department regarding those members whose wives worked or had money invested in a private enterprise. It is almost impossible to differentiate the time involved in a business (contracting for building houses, real estate, renting) or taking care of children while the wife is working. If a member paints his own house, but is renting it out, he still is working on his time off for compensation.

## LINCOLN, NEB.
### E. P. Feaster, Chief

Permission was granted by the City Council during World War II for firemen to work at other jobs on time off, which practice they have never seen fit to annul.

I feel that where firemen's salary has lagged behind private industry or is inadequate for a fair standard of living, there is justification in permitting firemen to hold outside jobs.

In my opinion, the advantages gained by such practice are numerous. In our department it has enabled the majority of the firemen to be able to buy their own homes and have a standard of living which makes them and their families good, solid citizens. It has had considerable bearing and shows up in the fire department activities. They have been able to pay their debts promptly, accumulate enough to give them a lot of self respect, and confidence in themselves.

## NEW HAVEN, CONN.
### Thomas J. Collins, Chief

Our firemen are not permitted to hold other jobs. However, many of them do and we have been keeping our eyes shut to the fact for the simple reason that we feel they are more or less justified since their salary lags behind those engaged in private industry.

Reporting to work in an over-tired condition is the one great disadvantage of permitting men to work in outside jobs; yet to enforce the ban would be most difficult since it would be quite a job to police the activities of the men.

## MANCHESTER, N. H.
### G. Napoleon Guevin, Chief

Members of the department are not allowed to take private employment when off duty.

We do not find it difficult to enforce.

We feel that firemen's salaries should be adequate and follow closely the average level of wages paid in private industry; however, if they do lag behind, oftentimes, by permitting firemen to be employed in private industry, we may defeat the purpose of bettering firemen's work and occupation.

## ALEXANDRIA, VA.
### Bernard J. Padgett

This department permits private employment of firemen providing it does not interfere physically with their fire department positions. Firemen are employed locally so that they may be recalled to duty at any time.

Any supplemental pay received by firemen is considered as credit to their standard of living. We believe that any additional wage that can be earned helps to overcome many domestic problems—particularly when fire service wages are normally below that of private industry. In view of this last fact, I feel there is justification in permitting firemen to hold outside jobs.

**Canadian National Exhibition Features Fire Display**

The famous Canadian National Exhibition is held annually in Toronto for 12 days the last of August and the first part of September each year. At the 1954 exhibition, which is just concluded, the Ontario Fire Marshal's Office had a 25-foot booth in the provincially-owned Ontario Government Building. Herewith is a picture of the booth, which the Fire Marshal's staff manned throughout the CNE and which was visited by a goodly number of the 2,500,000 people who attended it. Uniformed members of the Fire Marshal's Office were in charge and distributed a great deal of educational literature and also answered innumerable questions. At the right hand side was shown a box fire alarm which was used in a demonstration to tell the public how to operate these contrivances.

## GREENSBORO, N. C.
### C. W. Wyrick, Chief

Our department still allows off-duty men to take part-time jobs.

As long as the part-time job does not interfere or lessen the efficiency of a fireman when on duty, we have no objection to extra jobs.

A financially independent employee is the most contented and performs the best work, and with our salary below present day prices, these extra jobs with a little additional income, seem to keep the men more satisfied and realize a few luxuries they couldn't have otherwise.

So far, we have had no problems with extra work. Several other departments in the city have made extra work available to our men, such as traffic counting for the Police Dept.

The Fire Department has a good reputation in the city and employers are very glad to employ firemen because of their tested honesty and the ability to do a good job. This not only helps the men financially, but is also good public relations.

## MONTREAL, QUE.
### R. E. Paré, Director

At no time, even during World War II, were firemen of the City of Montreal permitted to take defense jobs in their time off.

The same policy still exists relative to permitting men to take private employment when off duty. This principle is against administrative rules of the city and also repudiated by the Montreal Firemen's Benefit Association (pension fund).

It is indeed difficult to enforce but, in every occasion when transgressors are discovered, they are told that they have the choice between being a fireman or else to resign their position for the other job.

I do not feel there is justification in permitting firemen to hold outside jobs; others must also earn their living. If one does not llke his job or thinks he is underpaid compared to other industrial concerns, he is free to make the change for better conditions.

I see nothing else but disadvantages in this practice; complaints amply prove that it is an excellent way to lose public confidence. Besides, no man can hold two jobs at the same time and do both well. How can a man that has worked all day give efficient service at night if called for a major fire?

## TACOMA, WASH.
### H. C. Fisk, Chief

This is a very serious problem that confronts many fire chiefs throughout the country, especially when there is unemployment.

We of the administrative staff do not encourage working on other jobs by fire fighters. We had, during World War II, many of the fire fighters on what were known as "victory jobs." At this time we do not have a written order to the effect of off-hours employment, but we do have rules in our Civil Service that state: "Employment in gainful occupation for profit in addition to regular City Service duties where such occupation tends to detract the mind of the employee from his duties, or leave him physically unfit for his regular work," is cause for dismissal.

We are very fortunate in this area where my fire department is, that we are keeping abreast of private industrv in pay scales.

At one time an order was issued by a former Commissioner of Public Safety that stopped all outside work, but it was too hard to enforce and we found that many of the fire fighters were better workers than the regular employees, and the employer kept calling to keep them working.

We found that men were not at their best when they had outside employment, although they found out what hard work was. It causes bad feelings among the personnel when a man who works on the outside can buy more and better things than the man that has no outside employment.

We found also that some members of the department that had been working on the outside had received injuries that later caused them to lose time on the department, which in turn was a burden on the city.

Tacoma is a very strong labor town, and fire fighters working at other positions have caused hard feelings between our department and outside labor. Many times we have had visits from union business agents regarding this outside employment. We then have a meeting with the president of our local, and it is taken care of by our own union.

## NORFOLK, VA.
### W. J. Lewis, Chief

In view of the severe manpower shortage during World War II, members of our department were permitted to take off-duty jobs, which was a great help to private business and industry in this area.

Although it is contradictory to the Rules and Regulations of the Fire Division, we have not objected to members still holding off-duty jobs as of yet since we feel that by the extra salary, to supplement our Fire Department salary, members can more comfortably meet their obligations and keep their standard of living on a higher plane. However, we think that it is a disadvantage for members to take night jobs by having to report to fire duty in a sleepy condition. We think that this would interfere greatly with efficiency.

In view of all of the above, at such time as firemen working on off-duty jobs are the target of complaints or if their working at outside jobs aggravates unemployment, or is being objected to by the various labor unions, then the present Rules and Regulations of our Fire Division, prohibitiing same, will be enforced.

## PHOENIX, ARIZ.
### B. B. Wilkinson, Acting Chief

There is no law in Phoenix which prohibits firemen working while off duty. There is a rule that requires them to be physically fit to perform all duties required of them by the Fire Department at all times.

If there is plenty of work for all in the community, I see no reason why firemen should not be allowed to take certain off-duty jobs. Thus, they would be able to raise their standard of living and at the same time keep themeselves in better shape for their regular duties, which would not be the case if they spent their off-time loafing. Idleness breeds trouble.

They should not be allowed to work where a labor dispute is involved, nor to work as a "bouncer" or bartender. Nor should they engage in any strenuous labor that would render them unfit for Fire Department duty at any time.

## VANCOUVER, B. C.
### H. S. Bird, Chief

During World War II, at the request of the Unemployment Insurance Commission, firemen in Vancouver were granted the privilege of working at other employment on their off periods.

Vancouver Local #18 of the International Association of Fire Fighters, after the conclusion of the war in 1946, passed a motion requesting the Fire Chief to stop part-time work in the interests of building up their own standing as professional fire fighters. The Local also asked the Chief to have this motion placed before the city authorities for endorsement which was done, and City Council adopted the motion.

I quote from our Fire Department Rules and Regulations which were approved and adopted by City Council, and which are included in the Fire Department Drill Manual—"No member of the Department shall engage in any occupation apart from his duties in the Fire Department."

We have had a minor amount of difficulty in enforcing this rule, and it has been necessary to suspend a small number of our members. At present there is very little work, if any, done off the job for gain.

I believe it is the responsibility of the fire fighters' organizations to take the necessary steps to bring their salaries up to a fair level.

In my opinion, where firemen are permitted to work at outside jobs, fire fighting soon becomes their secondary consideration and the fire fighters' interests seem to be to use their fire fighting time for rest periods to prepare themselves for their off-time jobs.

I do not feel that this is in the interest of efficiency and the proper development of our profession.

From our experience, it is only a minority group which would wish to work at two occupations. This minority group causes resentment towards the Fire Department from people engaged in other trades and occupations.

We do not believe that this is fair to a majority of firemen whose interest lies in their profession, and thus part time work should be eliminated, and the fire fighters' only concern should be in the efficient development of their own occupation.

## HOUSTON, TEX.
### J. W. Lobue, Chief

Any iron bound rule prohibiting men from doing any outside work runs into many complications, not the least of which is the fact that when a man is behind with his bills and has financial troubles he can not do a good job in the Fire Department or on any other type of job. I personally feel that it is sometimes good for the morale of the men to be able to pick up a few extra dollars in order to catch up on unexpected bills, such as medical and hospital, thereby relieving them of severe strain. Of course, this practice can be abused. Firemen may live beyond their means and never catch up on bills, thereby making careers out of off-time jobs.

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# Rochester Dedicates New Academy For Fire and Police Training

## Incorporates Every Facility For Practical Field Fire Extinguishing and Fire Department Maintenance

A SPECIAL REPORT TO FIRE ENGINEERING

*Editor's Note*: One year ago, in its September, 1953, Conference Issue, FIRE ENGINEERING published an exhaustive study entitled: "What Progress in Fire Service Training Facilities?" In that article, the author, Roi B. Woolley, Assistant Editor of this Journal, emphasized the forward trend taking place in the inauguration of full-scale training and proving grounds where practical, as well as theoretical, firemanship could be taught under actual field fire extinguishing conditions.

In that study the author described the other leading existing training installations and those under construction, and contemplated. Among the latter was the ambitious project of the Rochester Fire Department, Rochester, N. Y., which had just let contracts for the first steps in its program.

**The Rochester Fire and Police Academy, as it is known, is now a reality, with the impressive dedication ceremonies held October 1, 1954, followed by the launching of the City's 1954 Fire Prevention Week drive.**

**This enterprise may be said to spearhead the comprehensive seven-year improvement program which the department started last year and which, when completed, will place the Rochester Fire Department in a commanding position among the nation's foremost departments.**

**The editors gratefully acknowledge the assistance of the following in the preparation of this special report: Commissioner Kenneth C. Townson, Department of Public Safety; Fire Chief Walter J. Adams; and Deputy Fire Chief Ambrose E. Foos, in charge of training.**

TWO years ago the City of Rochester, N. Y., embarked on a seven-year modernization and improvement program to make its Fire Department second to none in the nation. This included, among other details, replacement of fire stations, fire apparatus, the complete installation of short wave radio and last, but not least, the creation of a training and proving ground on a major scale.

This program has been carried out, thus far, detail by detail. The high point was reached October 1, 1954, when the Fire and Police Academy Training and Proving Grounds, as it is termed, was formally dedicated.

The occasion was solemnized by a three-day ceremony which served also to launch Rochester's Fire Prevention Week campaign for the year 1954.

The dedication ceremonies were attended by numerous visiting fire chiefs and other officials from all over New York State, New England and Pennsylvania and Canada, as well as prominent insurance rating board and other authorities, many of whom remained for the entire three-day celebration.

On Friday, October 1, the program opened with an inspection of the Academy at 1190 Scottsville Road. The visitors were taken through the various buildings and shown the other facilities on the Training Ground. They also had opportunity to observe many of the newer apparatus units of the Fire Department drawn up for inspection at the site. Following this they were taken by bus to the Rochester Chamber of Commerce where luncheon was served and where they were told more about the Fire Department's progress, with emphasis on firemanship training and the ambitious plans in being and in the making for still further improvements.

The luncheon was served under the auspices of the Fire Prevention Committee of the Rochester Safety Council, with Allen L. Cobb, immediate past-president of the National Fire Protection Association as the principal speaker. Mr. Cobb linked good firemanship, and the need of advanced training methods and facilities, with the importance of fire prevention, complimenting the fire department upon its progress in both.

Following the luncheon, visitors were taken to the Training Ground where they witnessed a spirited exhibition of fire fighting, and impressive evolutions of five auxiliary fire drill teams from Point Pleasant, Sabreeze, Laurelton, Grand View and Chili, all in Monroe County.

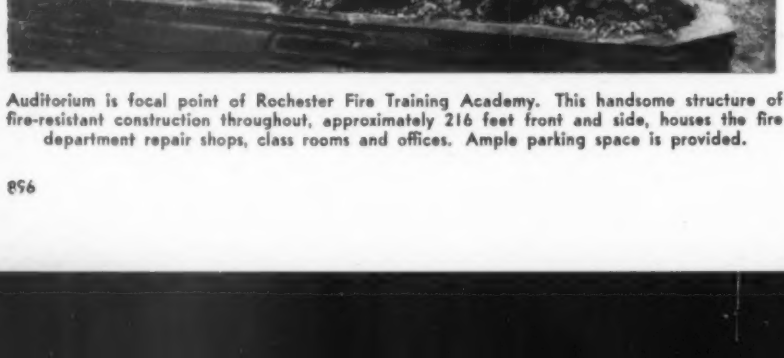
The Annual Fire Prevention Week parade followed at 7:00 P.M., terminating at the Fire and Police Academy where, at 8:00 P.M., the formal dedication ceremonies took place. Leading speakers were Mayor Samuel Dicker, City Manager Robert P. Aex, Commissioner Kenneth C. Townson, Department of Public Safety, Fire Chief Walter Adams.

### Atomic Bomb "Attack" Staged

On Saturday afternoon, October 2, a mock atomic enemy attack was staged with Monroe County area firemen playing the leading part in the various evolutions. These included rescues from the drill tower and smoke building, and fire extinguishing operations by various area battalion units. The afternoon's activities concluded with a firemen's tournament, with fire units competing in six events.

The five responding area battalions, each comprising a convoy of fire forces from suburban Rochester, had differeent assignments. The Battalion 4, first to arrive, operated on the tower hooking up hose lines, raising ladders, using life nets for rescue operations and extinguished simulated fires. Battalion 5, next to arrive, fought a "house fire" in the smoke building, effected rescues, using masks, and demonstrtaed relay operations, drafting from the river.

Battalion 2, which came in next,




**Auditorium is focal point of Rochester Fire Training Academy. This handsome structure of fire-resistant construction throughout, approximately 216 feet front and side, houses the fire department repair shops, class rooms and offices. Ample parking space is provided.**

drafted from the river and, using all possible outlets, threw up a huge water curtain.

The units of Battalion 1, next to appear, operated fog patterns on simulated tank car and other Class B fires, using dry chemical and foam. They also demonstrated these extinguishing agents on spill and pit fires.

Battalion 3, last to roll in, hooked up and fought simulated fires in cellulose, pyroxylin, acetate, nitrate plastics and magnesium, at the east end of the Training area.

On Sunday the Rochester Fire Department took over the demonstrations, personnel and equipment from five ladder and engine companies and other units, occupying the Training ground to participate in some 15 standard training evolutions. The company units included Engines 1, 5 and 8 and 17 and Ladder companies 3 and 6.

The evolutions included hose layouts and operations; laddering buildings; positioning of apparatus; ventilation coverage; use of safety-belts, ropes and life-nets; all forms of respiratory protective equipment; extinguishing roof, basement and other fires, including magnesium and plastics using water fog, straight streams and other extinguishing agents; operating cellar pipes and distributors and other equipment.

## The Fire and Police Training Academy and Proving Grounds

The Rochester Fire and Police Training Academy is located at 1190 Scottsville Road at the Southwest end of the City near the airport. It comprises approximately 10 acres and the South boundary is on the bank of the Genesee River. The academy proper consists of a two-story brick building of modern architecture.

The first floor contains a fully equipped apparatus division which is not only used for maintenance but also construction of fire apparatus. A pump test room occupies the northwest corner of the apparatus floor. This test room is completely equipped with a three-section, 20,000-gallon test pit, designed for proper aeration and cooling of water. Stationary gauges are provided to show R.P.M.'s, flowing pressures, water temperature, barometric pressures, etc. Carbon monoxide exhaust systems are in operation throughout the first floor so that pumpers may operate indoors during inclement weather. The first floor also contains rest rooms and a completely equipped paint spray room. It is expected that an auditorium will be built in the near future at the eastern end of the building.

The second floor of the main building contains offices for the Apparatus Division, Fire Training Division, Police Training Division and County Training. The Academy will be used by Monroe county firemen. The two large classrooms are provided and equipped with the latest in visual education aids. The rooms are provided for libraries for both Police and Fire Bureaus. A lounge and completely equipped kitchen available to the Staff is also located on the second floor.

The basement of the main building contains two pistol ranges of the latest design for Police Bureau training. A large room is provided which will be utilized for the display of latest type tools and appliances; cutaway models of pumps, motors, etc., will also be displayed in this room.

The entire area is well lighted with flood lights as well as street lights. Parking facilities are available for approximately 250 automobiles. The training ground is also entirely enclosed with an eight foot man-proof fence.

## Extensive Facilities

The conception of the Fire Training Academy has been to provide fully-rounded instruction and training for not only Rochester Fire Department personnel, but also for the volunteers of Monroe County who are part of the County Mutual Aid Plan, of which Rochester is the hub.

Much emphasis has been placed on practical field work—training-by-doing, and the facilities, such as pits, pools, tanks, etc., have been erected with an eye to their practical as well as permanent use.

Here are the more important details of the Academy field facilities:

**1. Size and location:** The training area measures 800 feet by 400 feet wide. It is located outside the business and congested residential districts, near the airport. Its site permits the use of smoke bombs and demonstration fires.

**2. Water supply:** Water supply is ample, both for hydrant operation and for drafting. There are 9 fire hydrants in the oval set-up and three drinking fountains.

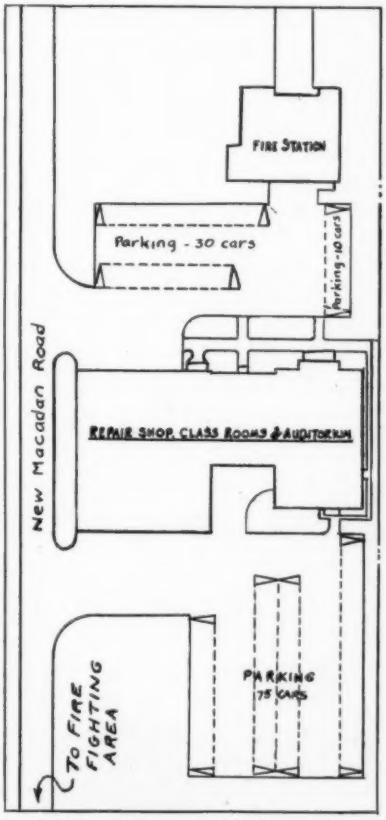
**3. Structures:** The main training structure is a six-story drill tower, of concrete and steel, having an adjacent equipment room for safe storage of tools and gear. The tower measures about 21.7 feet square and 55 ft. 7" high. It is fitted with regulation standpipe system extending through the roof. Also, both wet and dry sprinklers are installed on the 2nd and 3rd floors where actual fires will be started and extinguished. Fires also will be kindled and fought on the 5th floor and roof, permitting practical use of aerial ladders and ladder pipes.

**4. Fire Escapes:** Fire escapes run to the 5th floor, with ladder to roof. There is an outside iron stair to the 2nd floor. The tower is fully enclosed, with inside stairway running throughout.

**5. Fire Fighting House:** A 2½-story "fire fighting house" of fire-retardant construction, permits fires to be kindled and fought from basement to top floor and attic.

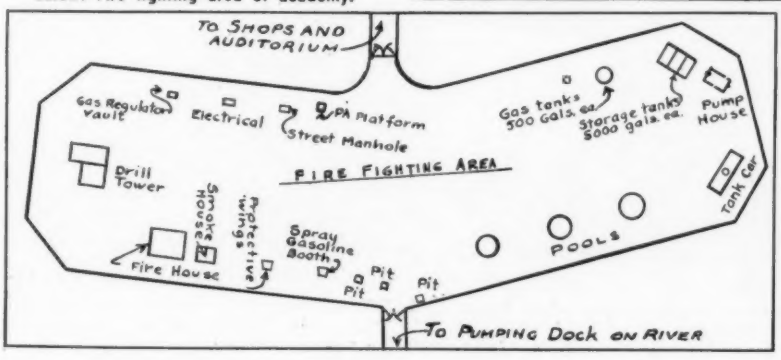
Ventilators are located in opposite corners of this structure, which can be used either to confine the smoke, or to permit it to travel from basement to room, facilitating ventilation operations. The layout permits of cross-ventilation as well as vertical venting. Each floor has metal covers which can be opened up for the use of various cellar nozzles and distributors. The roof also has two metal covers, with manual or automatic hatch cover. A feature of the design and construciton is the roof: one-half is gable type for use of roof ladders and the other half is very nearly flat, for flat-roof type operations.

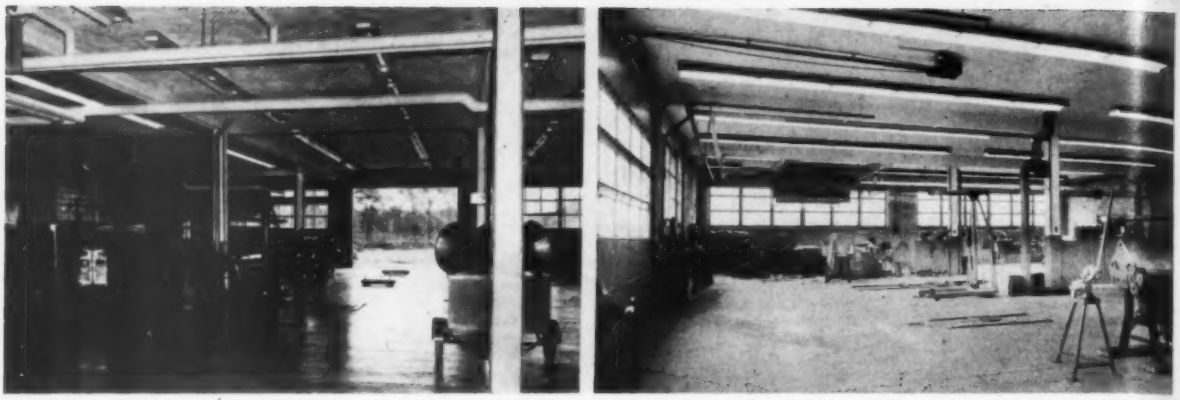
**6. Smoke House:** There is a smoke house for the use of masks of all types. Metal covers are provided in this structure also, to permit use of cellar pipes under severe smoke conditions.




**Right: Shops, auditorium, fire station and parking lots at Rochester Fire and Police Academy.**

**Below: Fire fighting area of academy.**





New Fire Department Shops a mechanic's dream. These photographs illustrate sections of the completely equipped Fire Department Shops which occupy the main first floor area of the Academy building. Mechanical facilities will permit major work to be done on fire apparatus.

7. **"Back Stop":** Next in line is what is called the "wings of progress" which actually is a "back-stop" with 45 deg. wings 10 feet high to permit the extinguishing operations in magnesium, pyroxylin and other chemical fires. This unit is designed so that when streams are directed on material which might possibly "blow" or explode, there will be no broad scattering of flaming material.

8. **"Christmas Tree":** A metal shed, erected on concrete base, has a vertical perforated pipe, known to navy fire fighters as the "Christmas Tree," which will spray gasoline or other fuels under pressure, giving a very hot fire. The structure has an open front through which attack is made.

9. **Square Pool:** Small 7-foot square pool, with a form in the center, is provided to simulate oil burner fires. This makes it possible to tackle such a fire from four sides.

10. **Small Pools:** There are two 7-foot small, open pools or pits, which can be used for fighting Class B fires, using water fog, carbon dioxide, dry chemical, foam and other type hand extitnguishers.

11. **Large Pools and Pits:** One 16-foot pit for larger Class B fire fighting is provided. Two 16-foot pools, having 4½-feet steel sides, are provided for large scale fire extinguishing operations.

12. **Tank Car:** A large, round, steel tank car, with heavy cradles, having 8,500 gallon capacity, permits various extinguishing methods under conditions simulating a tank fire either on the railroad right-of-way or on highways. There is a platform and catwalk around this tanker, with metal ladder; the burning liquid can be supplied under pressure through a perforated pipe running around the tank, near the top.

These complete the facilities of what is known as the south side of the Training area. In the center of the south side is a 150 foot dock with approach roads, along the Genesee River. This feature permits use of several pumpers to take draft. River water is used for all master streams where large volumes of water are desired.

On the north side of the fire fighting area there is a pumphouse, located at the northeast end. This has three 5,000 gallon fuel storage tanks and pump, which delivers the flammable mixtures to the various pools and pits.

Beginning at the northwest corner, and where the tower is located, there is a gas and electric set-up, consisting of the following:

1. 40-foot poles with wires and symbols indicating various voltages.
2. Gas manhole and gas regulators with regulation vent.
3. One large transformer for electrical fires.
4. One standard street manhole and conduit pedestal.
5. A small area for experimental work.

Finally, there is an area of approximately 200 feet long, where it is expected other additional installations will be constructed as funds are made available. These additional installations will include (a) a three-story building erected on the set-back principle; (b) aircraft, fitted with sprinkler systems; (c) ramps with perforated pipes for flowing liquid fires and (d) numerous small facilities such as sub-surface air-injection extinguishing systems (for Class B fires) and so forth.

A feature of the Training Area is a large public address platform, with roof shelter, and a complete P.A. system.

The Academy, it is needless to say, will always be in touch with fire headquarters, by wire and short wave radio.

Southern corner of the Academy "fire fighting" area. Showing (right to left) five-story drill tower and attached equipment house; 3½-story and basement fire fighting building; small smoke house; and public address platform. Picture was taken during inspection tour of underwriters, with Rochester fire companies drilling.

## Escaping LPG Perils Los Angeles Industrial Area

What could have been a disaster in the heart of Los Angeles was averted recently by firemen who dissipated 5,400 gallons of liquified petroleum gas that was loosed in a freak mishap.

A second alarm assignment of Los Angeles found no fire when they responded to the incident, but did discover enough of the 60-40 blend of butane and propane in the tank and nearby streets to form more than 200,000 cubic feet of gas which could provide a blanket of disaster one foot deep over a 41-acre area. This situation continued for three hours.

If this vapor had ignited, the loss of life and material would have resulted in one of Los Angeles' worst disasters.

Firemen dissipated the liquid, which had a flash point of less than 75 degrees Fahrenheit, with numerous spray streams.

The mishap occurred because of an improperly chocked tanker, which moved while still connected to an underground storage tank. This movement resulted in the filler-riser breaking off at the tank opening. The internal valve, equipped with a pressure differential at-

(*Continued on page* 982)

# Forest and Field Fires Continue To Cost Nation Heavily

## Despite Improved Methods and Equipment We Are Squandering Our Heritage

By ROI B. WOOLLEY
Assistant Editor

***Editor's Note:*** **The author of this article spent the month of July on the Pacific Coast, from San Diego to British Columbia. Through the courtesy of fire officers in every large city in the vast and beautiful area, including Los Angeles County, he had rare opportunity to observe and study the effects of the depredations caused by fire in forest and field over the years and, of even more importance, to witness the fire suppression activities of municipal, state, county, district and private authorities.**

**The weather was unseasonably hot over most of the nation at the time and it was breeding fires on the coast in brush and timber which, in previous years, would have developed into holocaust proportions. But organized, systematic fire fighting held these outbursts to the minimum.**

**Viewed in the light of the techniques and facilities of, say 1910, which year marked the end of public indifference to destruction by fire of the nation's timber resources, new fire fighting developments in methods and equipment are significent. For over 75 years this Journal has chronicled the more serious forest and field fire disasters, and how they were fought. That policy will be maintained, even expanded.**

**As evidence, we present the first of what we hope will be a number of studies and reports on this important subject. In the following, the author sets the stage by briefly reviewing the losses and some of the outstanding disasters in this loss category, from the time the first forest fire records were kept.**

**The author gratefully acknowledges the assistance of those fire officers on the Pacific Coast, and the other authorities quoted.**

WHEN Europeans first landed on these shores, there were surely enough forests to burn"—and the white man began at once to burn them.

It has long been the practice to lay the blame for forest fires of early days to the Indians and to claim, with little or no foundation of fact or record, that the red men wilfully burned the forests off regularly. But, as the U.S. Forest Service says[1] "If the American Indian did all the forest burning he is credited with, there would have been few forests left in America when the first settlers landed."

The attitude of the pioneer toward wood burning was doubtless inevitable. To the new settler the presence of the forest was more a source of danger than a benefit. He fired the woods to clear the land for farming; to create pasture and improve hunting; to remove the brush that would feed larger and more devastating conflagrations.

As settlers developed new areas, they established their own codes of perfectly good frontier logic for destroying the forests around their homesteads. That logic crystallized into fixed habits of thinking about forest and field fires, beliefs which persisted almost to the present, that a man had a right to burn off his property if he wished. Little wonder that in the early days there was almost universal opposition to laws for forest protection and to lumbering and timber growing.

No one actually knows just how great is our national loss each year from forest, brush and grass fires, but those who have studied the question agree that it is enormous. There is greater agreement as to the causes of such present day fires. Most of them are due to American carelessness and short-sightedness. Less than 10 per cent of them may be attributed to "natural causes." A disturbing number are due annually to arson.

What the man in the street, and many fire fighters, cannot grasp is the far-reaching effect of this burning. The loss goes far beyond the destruction of today's timber crop. It will be felt in many ways: in tomorrow's altered climate; in tomorrow's waning agriculture and games preserves and in tomorrow's lack of water resources, and available power. The loss will reveal itself in a thousand unsuspected ways. Twenty-five years ago, for example, the first coyote in history was reported in Alaska. The

**Crown fire has good headway. First major Pacific Northwest blaze of 1952 season tore through 600 acres of good timber near White Salmon, Wash. Seconds after this shot was taken, flames jumped a firebreak.**

[1]Great Forest Fires of America, John D. Guthrie, Inspector, U. S. Forest Service, U. S. Government Printing Office, 1935.

**Forest fire "blow up" looks like atomic blast. A 1931 forest fire on the Sardine Creek in the North Santiam River Drainage area, west of Detroit dam near Mill City, Ore., brought this effect. This area has been the scene of several serious blazes.**

appearance was traced directly to a forest fire that laid waste a wide area in British Columbia, clear to the Tanana basin. Following the fire, there sprung up small willows and grasses; rabbits multiplied in the new lush foliage, and coyotes worked their way north from Canada, following their natural prey. Today, millions of these predators are in Alaska, a menace to its valuable fur industry.

Not only is it difficult to estimate the monetary losses caused by these fires, but no accurate data exist as to the actual number of such fires. The National Board of Fire Underwriters[2] reports 320,585 fires "in grass or brush" in 1953. But these figures cover only those fires in places of 2500 population or over, and no specific mention is made of forest fires.

The National Fire Prevention Association[3] lists, for the 5-year period 1947-1951, a total of 188,210 forest fires, with average amount of loss of $44,967,200. Also listed are "Rubbish, Brush and Grass Fires" totaling 744,600, with no estimate of dollar loss. This same authority records eight large forest fires for the year 1953[4] which ravaged 245,749 acres, caused estimated property loss of $21,106,000, and which cost probably in the neighborhood of $2,000,000 to control. These, mind you, were fires, each having loss in excess of $250,000.

Still another figure comes from Secretary of the Interior McKay, who reports that during 1953 a total of 2,717 fires burned over 648,269 acres of land under his department's jurisdiction. In California alone, according to the State Division of Forestry, forest fires cost that state at least $229,279 on state-protected lands. That was the damage done by 997 fires, which had burned 70,251 acres up to July 1. The NFPA lists five "large-loss" forest fires in that state between the period July 10 and Dec. 27. (See Table I.)

An idea of the trend may be taken from the State Division of Forestry data. In the same period of 1952, there were 884 fires, responsible for damage totaling $171,631. The 1953 acreage figure is reported the highest of the six years listed by the Division. Losses, however, are lower than the $270,109 in 1951, the $571,979 in 1949 and $308,268 in 1948. The compilation, it should be explained, does not include federal forests, where one fire in the Los Padres Forest swept across 72,000 acres; another in the Angeles Forest blackened 30,000 acres; and a third in the Mendocino Forest, claimed the lives of 15 trapped fire fighters.

The following tabulation conveys some idea of the 1953 forest fire destruction in this country and Canada. Scant basic data are available on the extensive Quebec Province fires listed. Final loss figures in those fires were variously reported higher than those given in Table I.

## Number of Fires

Various authorities set the number of forest fires in this country at from 190,000 to 230,000 annually. Acreage burned is given as from 20 million to 25 million acres, variously established as equal to "New York State" or "Pennsylvania State" in size. No estimate of the loss to watersheds and to wild life is offered, however.

There you have a partial picture of property losses. There remains, of course, the more important loss of life due to such fires.

## Loss of Life

In the 22 year period, 1930 to 1952, the National Fire Protection Association[3] reports a total of 213 deaths in 94 fires. According to this authority, the fires reported "constitute roughly a 10 per cent typical sample of total estimated fire fatalities." This same authority lists the forest fires, and casualties from 1900 to the present (in Table II below).

These, however, are not all the large fires that took multiple lives. In 1910, the Baudette fire in Minnesota burned 300,000 acres and took 42 lives. That same year, on Saturday, Aug. 20, a 24-hour gale fanned a holocaust, and North Idaho and Western Montana became a raging torrent of flames jumping rivers a quarter of a mile wide. By the next day a strip of country 120 miles long and 20 to 25 miles wide had been laid to waste. Worse, still, 74 fire fighters had been burned to death. In 1902 there was a rash of severe fires and in one, variously called the Lewis River fire, the Columbia, Cispus, Yacolt or Cowlitz fires, 18 people were killed. This happened on Sept. 12-15. More than 600,-

**TABLE I—LEADING 1953 FOREST FIRES**

| Location | Date | Area | Loss | Cost to Control |
|---|---|---|---|---|
| Circle Cross, N. M. Lincoln National Forest..... | April 17 | 25,874 acres | $400,000 | ..... |
| Big Dalton, Calif. Los Pedros National Forest.... | July 10 | 74,165 acres | $550,000 | $250,000 |
| Forestville, Que. Various owners ..... | Aug. 7 | 175 sq mi. | $1,000,000 | ..... |
| St. Therese de Columbier, Que. Various owners ..... | Aug. 17 | ..... | $300,000 | ..... |
| Arrowhead Springs, Calif..... | Aug. 26 | 3,640 acres | $2,337,000 | $110,000 |
| Fish Fork, Calif. Angeles Nat. Forest..... | Sept. 9 | 24,000 acres | $7,550,000 | $550,000 |
| Los Angeles County, Calif. Angeles Nat. Forest..... | Dec. 27 | 8,980 acres | $2,069,000 | ..... |
| Los Angeles County, Calif. Angeles Nat. Forest..... | Dec. 27 | ..... | $6,900,000 | $250,000 |

Source N.F.P.A. Quarterly, Jan. 1954. Large Loss Fires of 1953.

The above does not include losses from forest and field fires of less than $250,000. Readers are referred to FIRE ENGINEERING for March, 1954, "Bulldozers and Helicopters Aid in Checking Huge Forest Fire" by Cliff Dektar for an accurate description of the two December California fires. According to FIRE ENGINEERING'S correspondent, the San Gabriel blaze (Angeles Nat. Park) burned over 15,000 acres, destroyed 36 homes and cabins, with loss in watershed damage alone estimated at $4,000,000. Cost to suppress this blaze was estimated at $400,000. Damage amounting to $1,000,000 was done by rains which followed a few weeks after the fire had denuded the hills of growth.

**TABLE II—LOSS OF LIFE 1900-1954**

| Date | Fire | Location | Deaths |
|---|---|---|---|
| Oct. 12, 1918..... | Minnesota Forest Fires..... | Minnesota ..... | 559 |
| Oct. 4, 1922..... | Northern Ontario Forest Fires.. | Ontario, Canada ..... | 44 |
| Oct. 3, 1933..... | Forest Fire ..... | Los Angeles, Calif..... | 29 |
| Oct. 11, 1938..... | Forest Fire ..... | Minnesota, Ontario Boundary ..... | 22 |
| Oct. 1947 ..... | Forest Fires ..... | State of Maine..... | 15 |
| Aug. 7, 1948..... | Forest Fires ..... | Vicinity of Helena, Mont. | 13 |

[2]Facts for Fire Prevention Week, 1954.
[3]NFPA Handbook of Fire Protection, 11th Ed.
[4]Large Loss Fires of 1953. NFPA Quarterly, Jan. 1954.

000 acres were burned with property loss estimated at $12,000,000.

On October 3, 1933, 33 workmen and civilian foresters were burned to death in Griffith Park, Calif., when they were trapped in gullies and ravines. In addition, about 100 others were injured and badly burned (Note: in Table II the NFPA list the number of victims at this fire as 28). It was the worst fire toll in the history of Los Angeles County.

Prior to 1900 forest fires claimed many other victims. Nobody knows the number of casualties in the 1700's and 1800's. It is known that some 160 persons lost their lives in the Miramichi fire of October, 1825, which swept over 3,000,000 acres.

No single forest fire of any character in this country has equalled the Peshtigo holocaust of October, 1871. This burned over 1,280,000 acres, wiping out homes, towns, settlements, and resulting in the deaths of 1,500 persons. Wisconsin may claim the dubious distinction of the fire with most fatalities, but Michigan's million acre forest fire in 1881 was runner up, with 138 people burned to death and property loss of $2,000,000.

Wisconsin also saw another tragic fire in July, 1894, when in what was known as the Phillips fire, 100,000 acres were burned and more than 300 persons killed. That same summer, Minnesota ran her sister state a morbid race, when occurred the great Hinckley forest fire. Millions of acres were laid waste, some 12 towns wiped out, 160,000 acres of forest lands burned, and 418 lives lost.

Tragically enough, many of the fatalities in the foregoing were fire fighters. If anyone doubts the hazardous nature of forest fire fighting the history of these great disasters, and many lesser ones, ought to convince him.

Space does not permit the recountal of all of the outstanding forest fires of the nation; however, it may prove interesting and enlightening to certain of our readers if we include a brief account of one of the more momentous disasters. That is the destruction of Peshtigo.

## The Peshtigo Disaster

Considering this was by far the worst, the most deadly of all the great forest fires, before or since, it is surprising how few members of the fire service are cognizant of its history. Among the other reasons advanced for this lack of recognition is the fact that it occurred on the same day—October 8, 1871—as the great Chicago fire. It was logical that the destruction of the nation's second biggest city, with untold loss of property and lives, should take precedence over the wiping out of a small Wisconsin town of which the world had heard little and cared less.

That year Peshtigo was a booming lumber town of 2,000 population, situated on both sides of the swift Peshtigo River which flowed southwest to enter Lake Michigan, six miles away. Most of its lumber and woodenware products were shipped to Chicago, over a narrow-gauge railroad which connected the town with its port, called Peshtigo Harbor.

The leading industry of the community was the Peshtigo Company, which turned out quantities of woodenware, while its mills, one in the town and one at the harbor, produced lumber. There were many transient laborers in the town at the time of the fire, workers helping build a railroad to connect Peshtigo with Chicago. There were three hotels, four saloons and two churches, and some other structures besides dwellings, all of wood construction. The immense forest began almost at the town's edge and ran west and north, broken only by a few clearings in the hardwood area a few miles from Peshtigo.

At the time, the woods around the town were primed for fire. A drought had plagued Wisconsin and Michigan since early May through September. The swamps were dry. Continuous fires throughout the hot summer had destroyed one telegraph line into the region. During September some of the slumbering fires had flared up to burn isolated sawmills, and farm buildings. A woods fire that crept into Peshtigo on September 24 took all the efforts of the mill's employees to control it.

October came in with dry warm weather during the day. On the 7th the only paper (printed in Marinette)

(*Continued on page 977*)

**Australia no stranger to brush fires. Volunteers try to halt advancing bushland fire near Blackheath, 50 miles west of Sidney, during 1952 summer season.**

**Volunteer fire fighter tackles blazing brush fire in Placerita Canyon, near Newhall, Calif. Uncontrolled ground blaze ranged over 1,200 acres, killing more than 1,400 hogs on a brooder farm.**

**Fire knocks on ranger's door! Fire stops 50 feet from ranger's lookout station in Cleveland National Forest near San Diego, Calif., during August, 1950.**

## *Undermanned Fire Departments*

# What is the Solution?

FEW in number are those fortunate fire departments which today have no manpower shortage. The great majority are operating shorthanded; in some, not a single company has its full quota of men.

The basic cause for this condition was the shortening of hours of work. A supplemental cause is the reluctance of city officials to increase fire department appropriations sufficiently to add to personnel. Fire departments, in many instances, are expected to operate under the forty-eight, or fifty-four hour work week with the same force they had when operating under the single platoon system.

Today, the problem is acute in departments throughout the country.

In the belief that a discussion of the problem by a selected group of Fire Chiefs, chosen from all parts of the country, might bring forth suggestions which may be useful in arriving at a solution of the difficulty, this symposium was planned.

The question asked the participants was: Most fire departments today suffer from shortage of personnel. If your department is in this category, what means do you believe could be employed to ease the problem, bearing in mind the current difficulty in securing increased salary appropriations?

Those participating have advanced many ideas which merit careful consideration. Some—the more fortunate—have told how they have solved the problem. There is food for thought in this constructive discussion.

### BALTIMORE, MD.
### Michael H. Lotz, Chief Engineer

There is no simple answer to the problem of personnel shortage.

We have been faced with the problem since 1946, which was due to the change to a shorter work week with no increase in personnel.

From 1946 to 1952 requests were made in the annual budgets for increased personnel; such requests were always denied.

The budget for 1953 also carried the request for additional personnel and the increase was allowed with the provision that the total number of men to be appointed be spread over a period of four years.

We have appointed one-half of the allotted personnel up to the present time and have requested the third quarter allotment in the budget for 1955.

Constant repetition of the need for increased personnel was made at every possible opportunity to the Board of Estimates and City Council by officials of the Fire Department and various civic groups.

The fact that many of the companies were at times operating with less manpower than the minimum recommended by the National Board of Fire Underwriters was stressed on every possible occasion, and probably had some effect on our city officials.

We have made some progress in alleviating the shortage, but whether the request for additional personnel will be granted in 1955 and 1956 is problematical.

### LONG BEACH, CALIF.
### Frank S. Sandeman, Chief

Fire departments are graded upon their ability to cope with the potentially large first or second fire. This is proper by good fire engineering standards. However, this potentiality accounts for only 5% to 10% of the total number of fires occurring within a given year. Faced with decreasing revenues, city administrators are attempting to maintain a low tax rate despite the considerable salary increases which have been granted service personnel during the last few years. This condition, it is believed, is responsible in great measure to reducing the force or maintaining the lowest number of fire personnel possible so as to accomplish budgetary balance. This condition has, or will, bring about radical changes in planning on the part of the fire chief as a consequence. These and other changes may be found necessary for reasons of personnel conservation:

1. Water tankage in quantities up to 300 gallons on all pumping engines.

2. High pressure auxiliary pumps for high pressure fog application. (Do not under-estimate this factor.)

3. Increased use of small diameter hose for initial attack, such as siamesed 1½-inch lines.

4. Use of hydraulically operated devices machined for one-man operation, such as aerial ladders, with lesser use of 50-foot hand extension ladders.

5. Portable monitors or turret guns of small capacity to facilitate ease of handling and release of personnel required elsewhere.

On larger fires the calling of additional help other than the original assignment may be found necessary. This may require an arrangement of mutual aid for departments limited in apparatus and personnel.

The points mentioned are some which may be supplemented according to requirements of the Chief concerned. One must consider water damage, methods of initial attack, supplementing of small lines by heavier streams and last, but not least, requirements of water supply, whether from mains or large capacity pumping engines.

### JAMESTOWN, N. Y.
### Charles R. Dorman, Chief

While it has been necessary for the Civil Service Commission of the city to schedule fire department examinations more frequently than in past years, we have been able to maintain a full complement of men.

Of the 20 men taking the last examination I would say that half, or 10, did so at the urging of a member of the departments. The other half were recruited through the standard advertisement in the newspaper plus other means, as follows:

I personally appeared on a radio program devoted to civic enterprises to explain the benefits of the fire service and to stress the time and place of examination. I also had large cards printed announcing the examination, which were placed in union halls and veterans clubs.

I feel there are many men who would enter the fire service but there is no concerted effort to obtain them. The particular age group we are interested in do not as a rule read the ads in newspapers and other means of publicizing fire department openings must be used.

### DETROIT, MICH.
### Edward J. Blohm, Chief

This problem does not exist in the Detroit Fire Department. Our manpower for years has been maintained at the maximum, and we have experienced no difficulty in obtaining appropriations when increased personnel is required. By the same token, replacements for retirements, deaths, resignations, etc., have been obtainable at will and a substantial list of applicants has been maintained through the Civil Service Commission at all times.

### DURHAM, N. C.
### C. L. Cox, Chief

This department consists of 108 men, including one Chief, one Assistant Chief, one Deputy Chief, one superintendent of fire alarm, one master mechanic, one fire alarm operator, one office manager, 17 fire captains, 20 drivers and 62 firemen. We operate 10 active companies (seven engine and 3 ladder).

On paper, we have 10 men assigned to each engine and ladder company. This leaves the three chief officers, superintendent of fire alarm, fire alarm operator and master mechanic free agents.

Our work schedule for all personnel except those six listed immediately above is the 72-hour week. Not counting annual vacations, sick leave not caused by duty, and leave caused by accidents on duty, the manpower for each truck

would be four men on duty five days and five men on duty two days of each week. This cannot be maintained due to granted leaves, which cripples any department.

We have found through experience that we are not confronted with the same problem in residential areas now as when the wooden shingle roofs were prevalent. The big majority of dwelling fires do not start on the roofs or in the attics. This alone reduces the need for ladder work. Of course, this does not apply to the average mercantile and industrial districts but when the total fires are counted, the big majority will have occurred in dwellings.

In my opinion the use of high pressure pumps and fog nozzles has done much to enable even single companies to successfully control the average dwelling fires with a minimum of personnel. Those of us who have used this type equipment for some years agree that on the average a more effective job is usually done by a single engine company than was formerly done by two engine companies when using only 2½-inch lines with straight open tips.

Most departments nowadays carry out a well rounded training program, which in turn should produce a better all-round operational program. Greater emphasis is also being put on inspection work and public relations. This means that department officials and all personnel desire to do a better job as time goes along. We should gain and maintain a reputation for thorough training, demonstrate a keen interest and participate in the worthwhile activities of the community. In doing this we would be continually reminding all personnel that each individual and each company will be doing a better job, which will be expected.

If present manpower should be decreased considerably, due to granted leaves, there is only one alternative. That is reduce the number of trucks and assign available man-power to others to assure reasonable strength of answering companies.

As a community grows, so does the need for fire protection increase proportionately. Fire department heads should be alert to this and recommend needed facilities and personnel to afford the necessary protection. If the governing body does not provide the necessary funds immediately, the fire department will be on record as having made necessary recommendations, and continue to try to get favorable action.

## GRAND FORKS, N. D.
### J. P. Newark, Chief

Our fire department like most others is suffering from lack of adequate manpower, due mostly to a salary schedule that is not too attractive and a work week that calls for a man to be on the job from 24 to 32 hours more than if he was in some other city department or working for a private concern.

While the lack of manpower is a handicap, we also have the problem of turnover in the personnel, especially in the younger men when they find out that there is a good deal more work to be done in the fire department than the average person realizes.

The next best solution to adequate manpower would probably be in the line of cutting down the number of fire stations to a minimum to centralize the available manpower and then fight the fires before they start. That is: Don't let the men sit around the fire station waiting for a fire call; train them in the art of making a thorough fire inspection. Keep about a third of the men on duty out inspecting, inspect the business places frequently and have all fire hazards removed before they get a chance to start a fire. See that all new buildings, remodeling and equipment installations comply with the Underwriters' Fire Codes.

By using this system, we could cut down our annual fire loss with our present manpower, as one good Inspector can stop more fires than a fully manned engine company can extinguish.

## BOISE, IDA.
### Steve Taylor, Chief

In our department we are not suffering too much from shortage of manpwer, although to bring the department up to standard we would require more men.

In my opinion, to obtain increase in appropriations requires a lot of selling. This has to be done by showing the citizens that by having the proper fire protection their insurance rates would be lower and better protection would be provided by their fire department.

In our case, we have excellent cooperation from the newspapers, radio stations, TV stations, Chamber of Commerce and Civic Clubs. I believe the use of these would be the best means of getting increased appropriations, as they in turn more or less govern the City Management.

## CALGARY, ALTA.
### B. P. Lemieux, Deputy Chief

We, like all other departments, are under-manned. We are very short-handed during the vacation period from April to October. The aerials and service trucks are operated with two men, and the pumps, etc., with from four five men.

We operate three shifts, 8:00 A.M. to 4:00 P.M., 4:00 P.M. to 11:00 P.M., and 11:00 P.M. to 8:00 A.M. On the change of shifts, one shift works from 4:00 P.M. to 8:00 A.M. the next morning. Every man has a day off in seven days.

We have 225 men on the department, which include Fire Prevention Bureau, alarm operators, mechanics, plumber, carpenter, and office staff. We have 205 men who are engaged in actual fire-fighting duties.

The Alberta Fire Departments' Hours of Labour Act, would not allow us to change to any other system without a change in the Act, and this Act could not be changed without a plebiscite of the people.

## SPOKANE, WASH.
### James T. Blamey, Chief

This department also suffers from a shortage of manpower in the fire fighting ranks. In order to correct this condition, we would need approximately 60 additional fire fighters.

During the past several years we have included in our department budget a request for additional fire fighters but each and every year this request is slashed from budgets we have submitted to the city council. Due to this fact, I have tried instead to gradually improve the working conditions and the salaries or wages of the men of this department.

The only way I know of to correct the shortage of manpower on this department is to change the attitude of the commissioners on the city council—for the present they are very much opposed to any increases in personnel.

## SIOUX FALLS, S. DAK.
### V. L. Crusinberry, Chief

First of all we must realize one of the main reasons for personnel shortage today is the reduction of hours worked by the fireman. It was not too many years ago that firemen worked four days and off one. From there the hours gradually decreased until today we range from a 40 to a 84 hour work week. When working conditions are presented to our various city officials, one of the first questions asked is, "What is a fair work week for firemen?" I believe one of the first things to settle in the United States and agreeable to all fire departments and Chiefs is a standardized work week. This I believe is the biggest factor affecting personnel shortage. In too many instances the work week has been shortened without additional firemen, thus holding the Fire Department budget at the same level. The Fire

**I.A.F.C. Radiological Hazards Committee Meets**

At Ottawa, Ont., on August 4-6, the International Association of Fire Chiefs' Radio Hazards Committee prepared a revision of the I.A.F.C. Manual "Radiation and Monitoring Fundamentals for the Fire Service." Seated from left to right, are Fire Marshal W. J. Scott, I.A.F.C. Director and Secretary of the I.A.F.C Radiological Hazards Committee; Mathew M. Braidech, Director of Research, National Board of Fire Underwriters, New York City, Chairman of the I.A.F.C. Radiological Hazards Committee, and Chief Gray Burnett, First Vice-President of the I.A.F.C.

Departments have a terrinc job of selling to do to the citizens as well as their local governments. Whenever a department cuts from an 84 to a 56 hour work week, it has lost one-third of its personnel.

Until the citizens are thoroughly familiar with the above-mentioned conditions and problems of the Fire Department, and until we receive their approval and support, we will continue to have this problem.

## MONTGOMERY, ALA.
### R. L. Lampley, Chief

Due to the splendid co-operation of the City Commission, we have been able to keep our manpower up to the necessary requirements. We are at this time negotiating with the City Commission for a considerable salary increase for our present force.

I am of the opinion that if proper emphasis is placed on this matter of personnel shortage by selling the City Commission on the necessity of additional personnel and by selling the Fire Department to the general public thru good public relations, this problem of personnel shortage can be eliminated to a certain degree.

## NASHVILLE, TENN.
### H. D. Demonbreun, Chief

First, I would say, that most fire chiefs, including myself, have asked for specific amounts with which to operate their respective fire departments, in their budgets. In granting the budget, money is always taken from the original amount asked, thereby necessitating the Chief of the Department to cut services, personnel or supplies.

Secondly, speaking for this department, some of our fire halls were built during the horse drawn fire engine era, when the halls were not built too far from each other. I think by eliminating one or more of the fire halls, and placing the men thereof at the different stations, the manpower problem would be eased.

In conclusion, and to summarize the above, it would seem the best means to obtain an increase in the department strength, is to have an outside authority, such as the Underwriters, conduct a survey of the fire dept. strength, and submit their recommendations directly to the civic authorities; such an investigation, of course, would have to be requested by the governing body of the local civic government.

**Needham, Mass., Crew Repairs Hurricane Damage**

Chief Richard Salamone and his crew in Needham, Mass., had their hands full when "Hurricane Carol" hit town. A check of the fire alarm system showed a score of boxes "knocked out." As each box was serviced, a sign was placed near it: "This box in service. No outside BRUSH fires during emergency." Thus, by combining prompt repair action with reassurance to Needham's citizens, the Fire Department was again in complete control of the situation within hours after the hurricane.

## OAKLAND, CALIF.
### J. H. Burke, Chief

The major reason for not filling vacancies in Fire Departments is cost of personnel. The question then is one of educating the authorities having jurisdiction to the danger of maintaining an inefficient department due to a lack of manpower; and consequent unfavorable insurance rating.

If a restoration of manpower cannot be accomplished in this manner, then other means should be adopted. As departments vary in many respects, ways of accomplishing the restoration of manpower are varied, too. It would depend upon the department affected.

## LONDON, ONT.
### R. C. McRonald, Chief

The last general manpower increase in the City of London was in 1946, when 21 additional men were hired to provide a 5 day 56 hour week, and this because of the shorter hours did not materially increase the number of men on duty.

Our city has expanded greatly, and in 1953 a larger 2-door fire hall was built in the easterly portion to provide increased protection. I requested a new ladder truck and 19 men to man this station (a pumper company being there at present). Council authorized the hiring of 6 men, and the transfer of one of the older aerials from the Central Station to the east end hall.

In 1953, the Canadian Fire Underwriters conducted a survey of the City of London, their report being released this year. In it they have recommended greatly increased manpower, and our 1954 Council has recommended to the 1955 Council that 21 men be hired to increase the strength of this Department (this is about half the total number of men suggested by the C. U.). This will then give us 4-man pumper crews and a 6-man ladder company in the east end hall. Therefore, in my estimates for 1955 I shall put in sufficient money for the addition of 21 men to our department.

## SAN DIEGO, CALIF.
### G. E. Courser, Chief

The City of San Diego has had no difficulty in recruiting interested young men to become members of the Fire Department. A goodly portion of our manpower is composed of former members of the armed forces—either marines, sailors, or soldiers.

It is my personal belief that the answer to the manpower shortage in the fire service is good salaries. This department is not the highest paid department in the United States, but does rate among the higher paid departments.

My experience has been that there are two things that candidates are most interested in—good salaries and security.

## MIAMI, FLA.
### Newton L. Wheeler, Chief

The Miami Fire Department is now about at full strength, as recommended by the National Board of Fire Underwriters. In addition, the working time was reduced to fifty-six hours per week in April and an across-the-board raise was given all personnel, except clerical, in July.

Although you requested reports from only those departments having difficulties, it may be that our experience may be of some help to others.

The basic problem of securing salary appropriations is one that can only be solved by consistent, coordinated effort along three equally important lines. They are:

1. The maintenance of efficient fire protection.
2. The maintenance of sound, effective public relations.
3. The maintenance of close, harmonious relations with the municipal administration.

These are all interdependent, and any lessening of effort on any one item makes obtaining larger appropriations difficult, if not impossible. Further discussion of these items may perhaps make this clearer.

The maintenance of efficient fire protection, insofar as manpower is concerned, is one which requires extremely close attention. It is recognized that the fire service has available many sources from which to obtain suitable specifications for apparatus, station houses, hydrants, main systems, etc., but the efficient use of such facilities depends on having an adequate number of above-average men selected by means of rigid entrance examinations and training and performance requirements. Admittedly such a policy of severe culling is long and arduous and, upon first thought, expensive. However, the gradual accumulation of such caliber men within the department serves several purposes:

1. Gradually raises both individual and company performance.
2. Eventually provides a source of good officer material.
3. Attracts men of like caliber to the department.
4. Presents to the general public men likely to gain their respect in uniform in private life and in civic organizations.

Efficent use of such manpower demands the proper ratio of on-duty personnel to the number of pieces of apparatus. Citizens who feel they are too distant from fire protection are naturally apprehensive and may bring pressure to bear to have a new station erected in their locale. It is necessary, therefore, to impress upon both the public and municipal officials that mere erection of new stations and the addition of apparatus does not of itself improve fire protection if manpower is thereby sacrificed.

In addition, the personnel must be thoroughly and constantly schooled and drilled. Good performance on the fire ground not only helps reduce fire loss and eventually insurance rates, but taking place, as it does, in the direct view of the individual taxpayers and

(*Continued on page 973*)

# Fire Pumps Protect Pan American Base

## PAA's Miami Airline Base, World's Largest, Has Elaborate Dual Fire Protection System With Four 2000 GPM Pumps

WHEN Pan American World Airways recently enlarged its overhaul operations at Miami (Fla.) International Airport, making it the world's largest airline base, the matter of protecting the huge installation against damage from fire received very careful attention. With dependability paramount, PAA decided to install its own pumping system to serve both the deluge system and the sprinkler system which protect the more than 450,000 square feet comprising the airframe overhaul area and the passenger terminal.

At the heart of the extensive fire-protection system for these operations are four Fairbanks-Morse fire pumps rated at 2000 gallons per minute each at 100 lb. pressure. Three are 18-inch vertical deep well turbine pumps drawing from individual wells; the fourth an 8-inch horizontal dual-drive centrifugal pump that takes its water from a 150,000 gallon reservoir.

Of the three 18-inch vertical pumps, one is direct-connected to a 150 hp. F-M vertical hollow shaft motor. Each of the other two 18-inch pumps is direct-connected through a right angle gear to a diesel engine. The 8-inch fire pump has a dual drive, being powered either by a 150 hp. electric motor or a 150 hp. diesel engine.

The work potential of the area covered by this fire-protection system explains the carefully worked out provisions for alternate sources of water, pumping and power to handle any contingency. All in all the base can take in stride the major maintenance of the more than 90 Clippers of PAA.

Four tremendous hangars on the north side of the Miami International Airport, devoted to airframe overhaul and minor services, form the nucleus of the base. One is devoted to the overhaul of double-deck Strato Clippers, the second is assigned to Constellations exclusively, the third to the smaller Convairs, the fourth to the DC-4s, DC-6s and Super-6 Clippers. All are of a size to accommodate seven planes, in various stages of overhaul, at one time. This hangar group is supplemented by 30 outdoor service positions, made practicable by Miami's mild climate.

Maintenance planners schedule the various aircraft for overhaul at regular intervals and there is a stable work load for the more than 5,000 employees on the base. Work is scheduled according to the time the plane has spent in the air, with complete overhauls of the entire plane after 8000 hours in the air.

A major overhaul involves complete disassembly of a Clipper. All components—the engines, wings, control surfaces, landing gear, instruments—are first removed and sent to specialized shops across the field. There they are completely torn down and checked. Before reassembly every component has been restored to new condition or replaced with new parts.

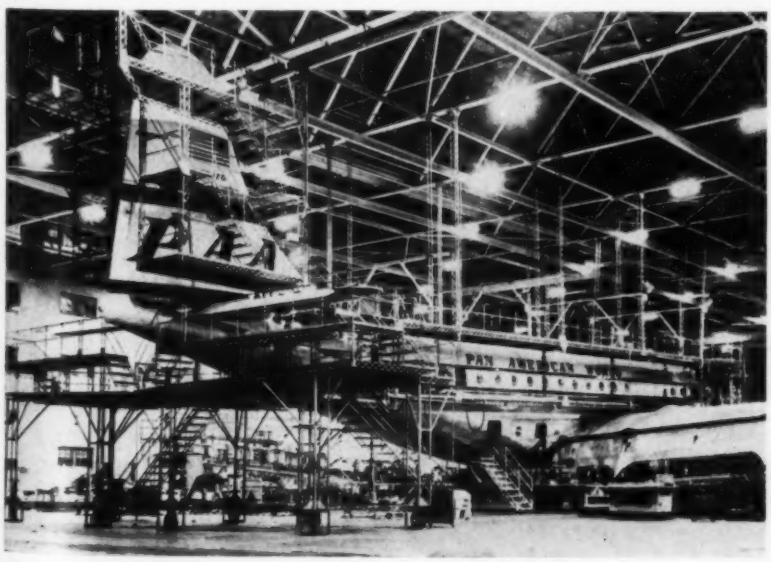
In the meantime the airframe interior is virtually "stripped to the skin." All windows, seats, partitions, doors and the floor are removed. All structural members are inspected and replaced if necessary. Sample sections of the soundproofing are removed for spot checks. Cabin modifications are made when improved materials demonstrate the advantage of such a procedure. Gas tanks and fuel pumps are drained, cleaned, inspected and given pressure tests.

Obviously, this volume of work on the giant Clippers requires vast maintenance facilities and a comparable system for fire protection.

Both the deluge system and the sprinkler systems depend for water on a network of undergound water mains ranging in size from 10 in. up to 16 inches. These mains supply the three vertical riser pipes in each of the four hangars which, in turn, feed a network of normally dry pipes suspended from the roof. Water is maintained in the mains and risers under a constant pressure of from 110 to 125 lb. by four 25 g.p.m. F-M turbine-type pumps direct-connected to 7½ hp. electric motors.

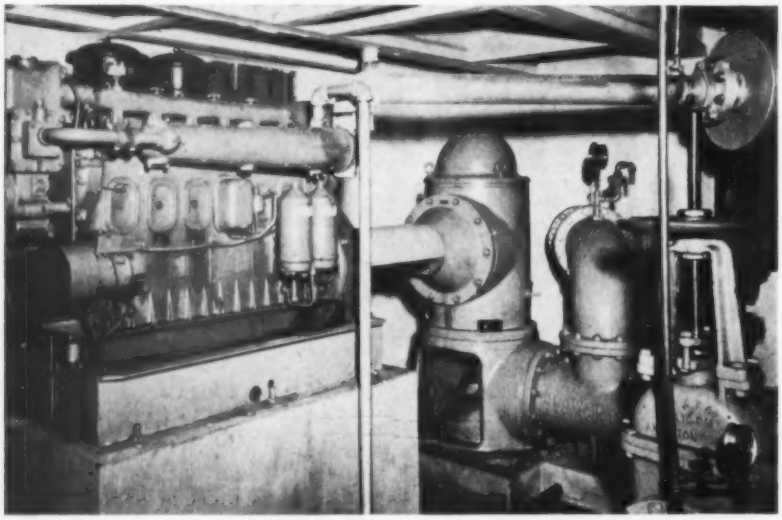
Each of the overhaul hangars is divided into three sections by corrugated sheet metal draft curtains suspended from the roof. All twelve sections in the four hangars are equipped with from eight to twelve "rate-of-rise" detectors which act on any sudden rise of temperature. Backing up this system is a conventional sprinkler arrangement, operating on a separate network of overhead piping, that goes into action when the temperature rises over 120° F.

If one of the rate-of-rise detectors in the deluge system were to spot a sudden increase in temperature, it would set off a whole series of reactions. First, it would ring a conventional bell alarm system. Second, it would open the valve in the riser feeding the overhead piping in the particular section of a hangar where the temperature rise was detected. Third, it would start up all three of the 18-inch vertical turbine pumps, two of which are driven by diesel engines, the third by an electric motor. Fourth, it would empty into the mains the pres-

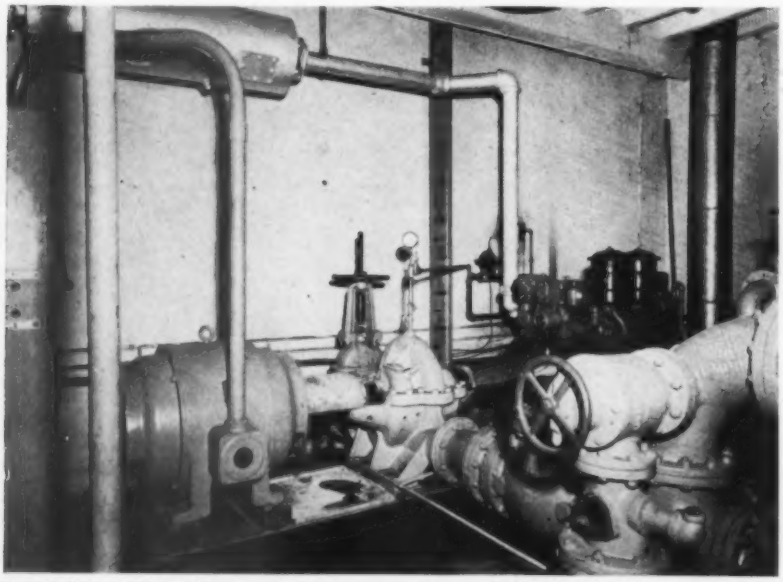



Double-deck Strato-Clipper, world's largest commercial airliner in "dry-dock."

Housed in this building are three of the four fire pumps; the fourth is in another building.



This view shows one of the two diesel-pump combinations. The 18-inch deep well turbine fire pump is driven through a right-angle gear by a diesel engine.



Here is the 8-inch dual-drive horizontal fire pump that can pump 2,000 gallons per minute into either the deluge system of the sprinkler system. It draws water from a 150,000-gallon reservoir.

surized contents of two 18,000 gallon booster tanks.

The deluge system alarm is also set to act in the event of a drop in water pressure in the underground mains and risers, and in case of a power failure. Either failure will immediately activate the 18-inch fire pumps—all three should water pressure drop, the two diesel-driven units should electric power go out.

The 8-inch dual-drive fire pump is intended for use only in extreme emergencies and is manually started.

Special conditions were encountered during the building of the two concrete structures housing the four fire pumps. Because of their location adjacent to an apron traversed by the Clippers it was not possible to make either building high enough to allow head room for removal of the pumps for servicing. Consequently, over each of the vertical pumps there is a trapdoor in the roof for use if it should ever be necessary to remove the pumps.

## Arson Suspected in High Point Fires

Three major fires struck High Point, N.C., during the night of July 13.

A half block of the city lay in a burning mass and smoke covered the eastern part of the city, a grim result of the blazes that gutted four different firms and caused damages tentatively estimated at more than $1,000,000.

Fire Chief Claude Canady, who had help from nine cities and towns in fighting the flames, said he had a suspicion that the fires were of incendiary origin.

First fire was at Jiffy Manufacuturing Co. in the 600 block of W. Green St. Second was at the old Tate Furniture Building, housing several furniture-related businesses. Third was at Snow Lumber Co. Both of the latter are just east of the main business section.

Fifteen firemen were overcome by smoke and another suffered a hip injury when he fell through a floor. All were hospitalized.

Authorities suspected arson and reasoned a firebug may have set the blazes. They were too widely separated for the wind to have carried sparks or embers—the first was six blocks west, the third was against the wind from the second although only one block.

Each of the last two fires raged out of control for several hours, feeding on highly combustible materials. Firemen blocked flames from the huge Southern Furniture Market exposition and City Hall on the west, and two city blocks of old frame and tin manufacturing buildings on the east.

Police were investigating reports that a prowler was spotted by a night watchman before the first blaze broke out at 10:15 P.M. at the Jiffy Manufacturing Co., about six blocks west of the other fires.

This fire was just being brought under control at midnight when firemen received calls that the Monarch Furniture Co., Inc., and the B. & W. Upholstery Co. were burning. These two firms were housed in the old Tate Furniture Co. building, located in the 300 block of Mangum Avenue two blocks from City Hall.

Then, as these two blazes were nearing control, flames shot skyward at the

(*Continued on page* 982)

# SOME NEW FIRE STATIONS WHICH INDICATE TRENDS IN DESIGN

### Utility as Well as Attractiveness Featured in Newest Structures

SELDOM before in the history of the fire service has the question of the number and location of fire stations received so much consideration as at present. It is doubtful, also, if ever before the design, construction and functional features of fire stations got such serious study.

The reasons are clear: never before were fire department budgets and costs subject to such scrutiny and the paring knife. Costs of municipal government, fire protection included, have continued to mount while, proportionately, revenue has failed to keep pace. The result is that the rule of economy is being applied wherever and whenever possible.

This has resulted in re-evaluating and re-appraising municipal fire facilities in the light of present and future needs and, in some instances, of wholesale readjustments and revisions both in the number of fire stations, their location or relocation, and the facilities they are to house.

It has long been apparent to local fire officials that the layout and character of many of their fire houses were entirely out of line with present day and future needs of their departments. While many of these fire stations occupy sites picked for best coverage during the days of the three-horse-hitch, those locations and their houses, too, are no longer situated strategically in the best and most economical interests of the community, or the fire department. Shifts in the business and traffic of the municipality have in some cases moved population concentrations elsewhere. True, the old structural hazards may still be present in the old "business districts," even perhaps in worse condition because of withering age, but the growth of nearly all cities is toward the suburbs, and the inclusion of business and industrial enterprise in previously residential areas, has called for serious reappraisal of the entire fire protection picture locally.

The net result is a re-shuffling of fire stations, which in some cities, has resulted in a discontinuance of stations, and in others, an increase in new stations. In nearly every city, this is supplemented by the reconstruction of, or extensive repairs to old existing fire stations.

There is no need here to elaborate on these developments; every municipal fire officer is aware of the situation. But when it comes to the task of rehabilitating the old, or planning and building the new stations that is another matter. There are few architects and builders in this country who have specialized in fire station design and construction. There are many who can and will create a structure that is a "thing of beauty and a joy forever," but which, functionally, may be lacking.

For many years, FIRE ENGINEERING has published periodically in pictures and specifications, the story of the latest type fire stations. Unfortunately, it has not always been possible to publish floor plans and functional details. Readers will find a number of the newer, representative fire stations described in the following.

## Kalamazoo Boasts New Station

On March 18th, 1954, the Kalamazoo, Mich., Fire Department Chief Lloyd J. Currey, became the proud possessor of an outstanding fire station, No. 2, located approximately one mile distance from the site of the original No. 2 in order to better protect a newly annexed industrial section.

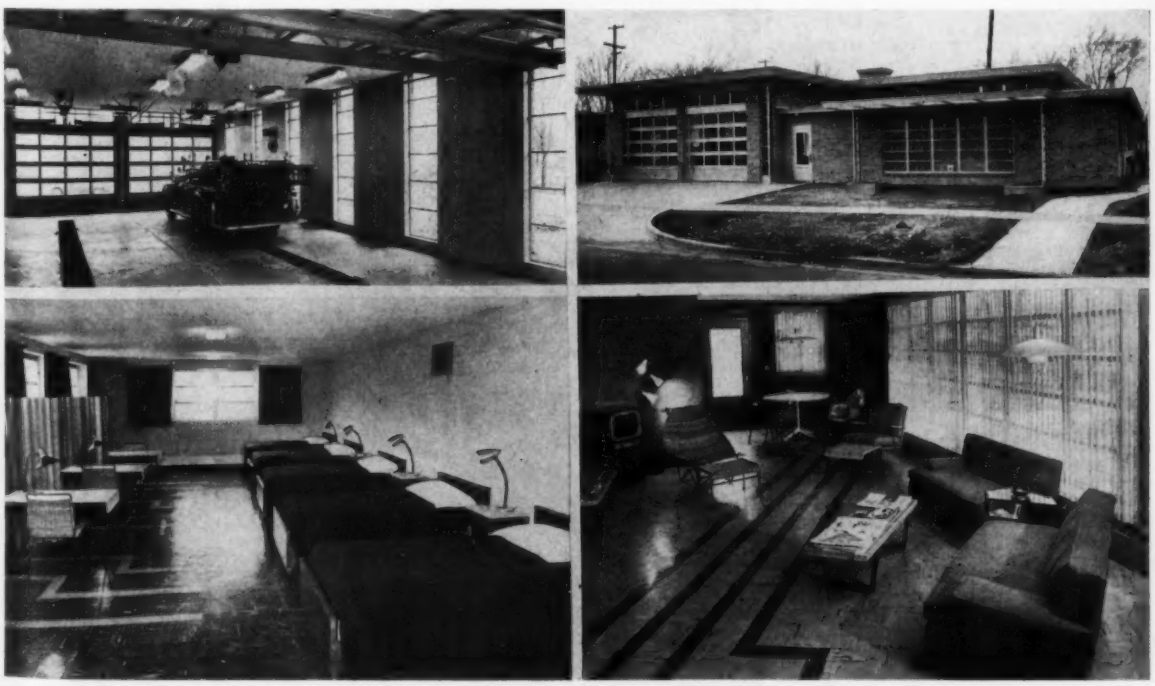
The building, which was planned with an eye to the future, both as regards design and location, is of masonry construction, cinder block on the inside with face brick exterior. The apparatus floor is built to house both a pumper and ladder-truck and can be extended as future expansion necessitates.

The corner location with rear service alley permits apparatus to enter from the rear, thereby eliminating backing into the station.

Overall dimensions of the building are 78 ft. by 58 ft. The basement area measures 41 ft. by 54 ft. and it has both inside and outside entrances. It is suitable for use as a meeting room or for community gatherings.

In all of its appointments, the Station is up-to-the-minute. Heating is by hot water system, gas fired; hose is dried electrically; special efforts have been made to provide for the comfort and convenience of the personnel. Each bed in the dormitory is equipped with Nite-lite. Desks have reading lamps where men can study and write. Lighting, both natural and artificial, is ample throughout. Wall trim and floor covering combines utility with attractiveness.

Ten men are presently assigned to the new Station. They operate on a two-



Top left: Apparatus room at Kalamazoo's new Station No. 2. Top right: Exterior view of new station. Bottom left: Dormitory features study desks and individual bed lamps. Bottom right: Lounging room.

platoon system (five men on each platoon).

The total cost of the building was $90,000. The architect was William A. Stone; the contractors Miller-Davis Company, and the furnishings, which were selected for their simplicity, durability and comfort, came from the Vermnelen Furniture Company.

## National City Has New Modern Station

National City, Calif., dedicated its new Fire Department Headquarters Station on April 3, 1954, last with formal ceremonies, during which Mayor Frank Sarn turned over the keys to the modernistic structure to Fire Chief J. C. Bailey.

National City, adjoining San Diego on the south, covers an area approximately 6 square miles and has a population of 30,000. The fire department long ago outgrew its old brick building, erected in 1910.

Plans were drawn and construction started on the new station in 1953. The property covers an entire half block (115 ft. by 250 ft.) and will include, when fully developed, the latest in drill yards, with paving, drafting tank, and hydrant all enclosed by fencing.

The headquarters station itself is one-story, covering an area of 7600 sq. ft. It is a three-door station with access to one street that in turn gives a four-way access to all parts of the city.

The apparatus room will house six pieces of equipment and is adjoined on one side and at the rear by administrative offices, dormitory, kitchen, recreation room, shop and tower. Provisions were made, in the planning, for the future growth of the city, and the fire department, which presently includes sixteen men and the chief. Expansion of the fire alarm system also is anticipated.

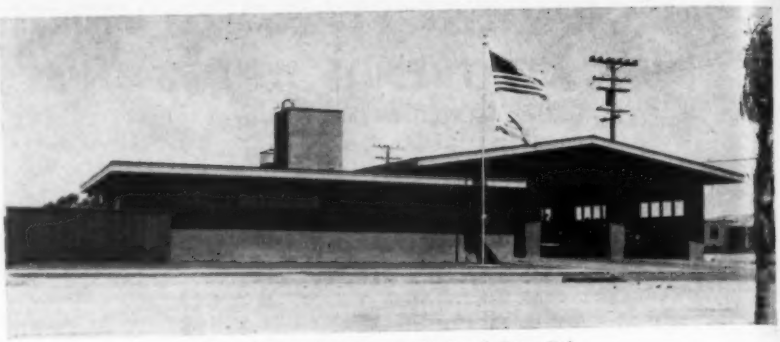
The dormitory accommodates 16 men. There are spacious lockers, and features of the kitchen equipment are separate refrigerators for each shift. Outside the recreation room is a patio enclosed by a redwood fence. Provisions are made for ample hose storage.

The drill tower is three stories in height. There is a smoke chamber where respiratory protective equipment is used in training. In the rear of the middle apparatus stall is the shop where minor repairs, lubrication and oil changes are made. It includes recessed pit with air connection and explosion proof outlets; ladders for tower work and tool cabinets. Air and apparatus battery outlets are located conveniently in the apparatus floor. Off the alley, near the patio, off-street parking provisions are made for personnel.

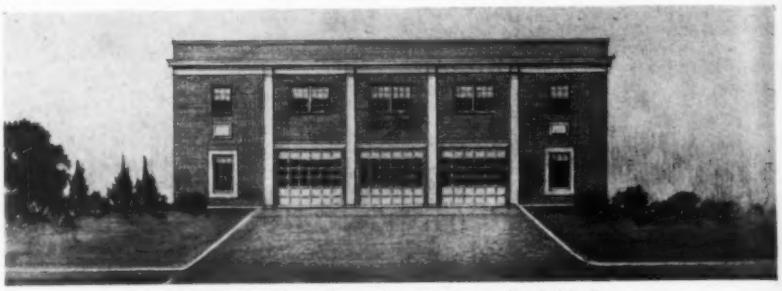
## Fairfield to Get New Station

The new fire station proposed for the Center Volunteer Fire Company of Fairfield, Conn., is shown in the sketch herewith, prepared by Architects Herbert C. Elton and Fred C. Anderson, of Bridgeport.

The two story building of brick and concrete construction, estimated to cost approximately $185,000, will be located on Legion Field, Reef Road. The structure, 70 by 80 feet, provides apparatus space on the first floor with front and rear entrances. Also on the first floor will be located the watch room, Chief's room, sleeping quarters for the switch-



New fire headquarters at National City, Cal.



Architect's drawing of new fire station for Fairfield, Conn.

San Diego's new fire station.

New Etobicoke Fire Station

board operator, a lounge for volunteer firemen, and facilities for the installation of a central fire alarm system at a future date.

The second floor provides a large meeting room, dormitory for paid firemen, kitchen, commissioners' room and toilet facilities. A basement about half the size of the building, is planned to provide room for a central heating unit, storage, and hose washing and drying facilities.

TOM MAGNER

## San Diego, Cal., Opens New Station

San Diego's newest fire station, manned and equipped to provide first-due protection for business and residential property in one of the city's largest and most recently developed sub-divisions, was opened officially on February 10, 1954.

The one-story concrete block structure, designated Station No. 25, was built at a cost of $58,000 on city-owned property overlooking Mission Bay. With 3,500 sq. ft. of floor space, the structure is large enough to house two engine companies and is of Type 1 construction throughout. As characteristic of all of San Diego's newer fire stations, part of the hose tower is below floor level. This allows design and construction to conform with the architectural style of adjacent buildings.

Fire Chief George E. Courser arranged and conducted opening ceremonies in which leading civic officials participated. Following the invocation by Father Daniel O'Donoghue of the parish in which the station is located, Clair W. Burgener, Councilman for the District, clipped the official dedicating ribbon. Principal speakers included Councilman Burgener and Joe Silveria, head of the Southern California Division of the Pacific Fire Rating Bureau.

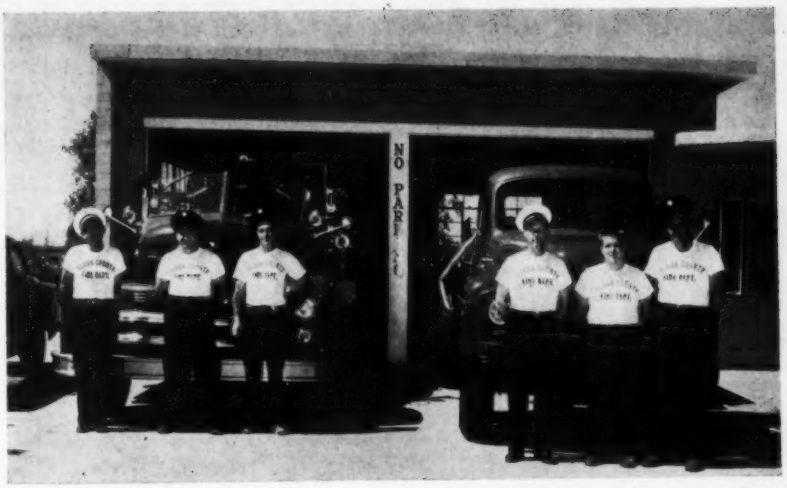
Coincident with the opening of the station, insurance rates on business and residential property in this and other outlying sections of the city were substantially lowered. Residents thus received better protection at less cost as an immediate result of intelligent fire defense planning and efficient fire protection operations.

## New Modern Station for Etobicoke

In the western suburbs of Metropolitan Toronto, Ont., known as Kingsway, in the Township of Etobicoke, a modern fire station was officially opened by Reeve Bev. Lewis, who is the Reeve of the Township of Etobicoke, along with Chief Fred Mitchell, who is Chief of the Fire Department. The new building is located on Royal York Road north of the Queensway, serving the industrial and residential areas.

It is built of buff brick and two stories in height and equipped with modern equipment. The first floor has two bays for the apparatus and also a desk or watch room, also room for stores and an electrical hose dryer. At the present time two pieces of apparatus are located in the building, a 1000 gallon pumper and quad unit. The opening of this station inaugurates the first paid fire company. There are 17 full paid men on duty, under Chief Fred Mitchell. At the official opening, many fire chiefs from neighboring departments attended.

JOHN KARL LEE.




New station and equipment of Clark County Fire Department, Nevada; 1953 triple combination at left and 1954 tank truck at right.

## Department Formed to Protect Las Vegas Hotels

Full-time fire protection for the seven resort hotels and other structures on the fabulous Las Vegas, Nev., strip is now being provided by the recently-organized Clark County Fire Department.

Protection for the strip of county territory taking in the Paradise Valley and Winship Townships formerly was provided under contract by the Las Vegas city department.

On January 1, the county, under Chief Bill Trelease, took over, operating from a new $33,000 station located behind the Flamingo Hotel on Highway 91 west of Las Vegas proper.

First rig put into service was a 1953 pumper with a 750 g.p.m. pump and a 400-gallon tank. The rig is also equipped to use high pressure fog and has a permanently connected rear suction hose to draw water.

"Our water supply is not too good here in this desert area," explained Chief Trelease. "So we must be prepared to use the water in the swimming pools. Almost every hotel and motel along the strip has a pool, while only three or four of the big hotels have hydrants."

On May 1 a new 1000-gallon tank wagon with a 500 gallon pump was placed in service.

County firemen at present cover an area of 67 square miles in the two townships. Chief Trelease pointed out the assessed valuation in the area currently is $77,000,000 and construction of new resorts is continuing at a heavy pace.

The new station is of modern design and provides space for the two pieces of apparatus and the chief's car. A beautiful, glass-enclosed dayroom has been provided for personnel. Another station is planned at the east end of the strip on the grounds of the El Rancho Vegas Hotel.

At present direct phone lines run to the station from the Flamingo, Last Frontier, Sahara, Desert Inn, El Rancho Vegas, Thunderbird, and Sands Hotels.

"We have a switchboard on order and it should be installed soon," the chief noted. "We have no radios yet, but we plan to install radios on our rigs on the Clark County Sheriff's frequency."

The chief is a veteran of more than 30 years service on the Las Vegas F.D. He started as a volunteer.

Chief Trelease's son, Capt. Arthur R. Trelease, has just been appointed head of the newly-formed Fire Prevention Bureau of the Las Vegas F.D.

## Too Little Water — Too Big Crowds Balk Camden Firemen

Shortage of water supply in the critical early stages of a fire that evidently had a good start; crowds of excited onlookers, numbering at one time fully 6,000; traffic jammed and snarled, through which fire apparatus had to fight its way at the busiest hour of the day, all contributed toward the completed destruction of the Linden Baptist Church, 9th and Linden streets, Camden, N. J., on July 23 last.

Starting from an unknown cause (police and fire are exploring the possibility that the fire was set by juveniles), the blaze was first noticed in the north end of the Bible School Building at 9th and Fern streets at 6:50 P.M. by an unidentified off-duty fireman. Within 25 minutes all Camden apparatus except Engine 9 and Ladder 3 were on the scene struggling to gain control of flames that threatened residences and other exposures in the closely built-up area.

Less than a block from the church is the home of Fire Chief William Pfefferle. The chief was on vacation and about to leave on a week-end trip when he saw flames shooting from the church. He responded immediately and, with District Chief Ed "Ruddy" MacDowell, directed the multiple-alarm battle.

The church building was erected in 1904 and the combustible interior proved ready fuel for the fire which gutted the structure. A brisk wind whipped flames from the church, igniting window frames in a dwelling at 914 Fern street. The heat also broke windows of the dwelling at 424 N. Ninth street and flying embers ignited other frame struc-

(*Continued on page* 984)

# DEMAND FOR RESCUE-EMERGENCY SQUAD EQUIPMENT ACCELERATES

### Fire Forces Continue to be the First Called to Disasters of All Kinds

WHETHER the fire service desires it or not, from all indications it will continue to be called upon to respond to emergencies and disasters of all kinds, fire included. Many of these requests, as pointed out in the study of fire service extra-curricular activities elsewhere in this issue, call for first aid and emergency medical help. The variety and number of such calls shows continual increase.

To meet these growing demands, the fire service is showing live interest in modern type of, rescue and other emergency apparatus and equipment. This is encouraged somewhat by the support given rescue services by the Federal Civil Defense Administration, and its sharing-funds-program which has resulted in the addition of scores of C. D. rescue units either directly to fire departments, or where they may be called upon by the latter to assist in disasters involving the fire forces.

There is an encouraging increase in the number of fire rescue and first aid squads throughout the country. This is true particularly in the field of volunteer firemen. In not a few of these organizations "rescue" and "first aid" are being combined with fire patrol activities, and even salvage operations.

In some cities, shortage of manpower has necessitated cutting down crews of some rescue and emergency squads. In others, efforts are being made to allocate some of the functions to regular fire fighting units (which is not a happy solution in most instances coming under our observation). In one city, New York, plans are being considered to turn nearly a score of police emergency units over to the fire service because in the eyes of many authorities, the fire department is eminently more qualified to handle such operations.

In still other localities, fire departments are going in for more one and two-men emergency squads, equipped to meet fully 90 per cent of the emergency calls made upon these departments. In some of these cases, the larger rescue and emergency units are retained in quarters and only rolled on special call. Now that radio is becoming an integral part of almost every piece of fire apparatus, and is being relied upon by so many fire departments to direct movement of fire forces, the reserve rescue units can be more quickly placed in operation with reserve manpower, or that called from off-shifts.

On the other hand, many departments, such as Portland, Oregon, possessor of the famed Jay Stevens Disaster Unit, continue to roll their large rigs to even first alarms of fire as well as special calls, where in the opinion of the fire department the hazards to life and property are greatest (such as hospitals, hotels, places of public assembly, etc.).

Many fire chiefs, who not long ago believed their departments could get along with the aid of outside ambulance and first-aid assistance from local hospitals, have changed their thinking. As one municipal chief reported: "I want our own rescue and emergency squad and, in addition, I want our own ambulance, because it is no longer possible to depend upon local hospitals or neighboring fire departments for emergency aid that may be needed in a hurry. We can no longer ask busy and overworked hospitals to send us ambulances and/or first aid crews to stand-by perhaps for hours at stubborn, long-drawn-out fire operations, when those services are badly needed at their home hospitals or other institutions. Hospitals are as short of manpower as fire departments. Locally we can get medical personnel in pretty much of a hurry, but we can't get the *equipment and facilities* for rescue and other field emergency work on the button.

In target areas, the problem of additional rescue and emergency services is even more serious. Civil defense medical and first aid (there is still some confusion over where civil defense rescue and fire department rescue begin and leave off) generally cannot be counted upon by the fire service in the event of large-scale enemy attack, or even a major disaster involving large masses of people and possibly wholesale casualties. Who then is to provide first aid and rescue service for the *fire service?* The answer is, of course, that the fire service should be sufficient unto itself to cope with the increased emergencies that will arise within its own personnel during fire department operations. This constitutes another valid reason for further strengthening fire service rescue and emergency forces and resources.

A few of the more recent additions to fire department and first aid squad equipment follow:

## Imposing New Disaster Unit

In the forefront of fire forces throughout the nation that are adding disaster, emergency and rescue units is the Suburban Volunteer Fire Department and Disaster Squad of Klamath Falls, Oregon.

Oregon has long been known as possessor of perhaps the most noteworthy disaster unit in the nation, the Jay Stevens Disaster Unit maintained by the Portland Fire Department. Its fame has become so widespread that the state itself has suffered somewhat from lack of other similar units, even of less pretentious caliber.

Recognizing the fact that the Klamath area, located in the southern part of the state, is becoming a strategic spot in highway, rail and air travel, and recognizing the call for disaster and rescue equipment as a part of the Federal preparedness program, the Suburban Volunteer Firemen have fallen in line with the larger departments on the Pacific Coast in assuming the responsibilities of this added public service. After many months of careful planning in forming a disaster unit, the Klamath Falls Suburban Volunteer Fire Department, under the supervision of Fire Chief M. G. Gordon, recently completed the conversion of a 37-passenger Greyhound bus into a highly practical disaster car.

The piece is especially designed for every type of emergency with which modern live saving workers may have to deal. The vehicle will also serve as a mobile base for first-aid, rescue and salvage work at the scene of any major disaster that might occur.

Completing another step in a progressive program that has kept the local volunteers on the jump from the time the department was first organized, Chief Gordon and the members who all participated actively in creating the unit, proudly placed the Suburban Volunteer Fire Department Disaster Car on exhibition, and in service for the first time, at the Klamath County Fair Grounds during the three-day July 4th celebration.

The unit's equipment ranges from the radio control desk in the rear to a complete field kitchen just behind the squad's seating compartment up front. Between the kitchen and radio control desk are located the cabinets for storage of items such as medical supplies, rescue equipment, firemen's gear, etc.

An emergency operating table, having a dual resuscitator, inhalator and aspirator below it, is located at one side. The car is specially wired for the proper lighting throughout and generates electricity from its own portable 110-volt plant, located in one of the three large storage compartments at the bottom of the car.

Purchase of the disaster car itself was made by the Suburban Volunteer Firemen using money derived from the de-

Disaster unit at Klamath Falls, Ore.

Emergency unit of Monticello, Ia., Fire Department.

partment's annual dances. The actual cost of the equipment involved so far was also paid for by the volunteers with many items, materials and labor received as donations of business firms in Klamath Falls and its South Suburban Area.

Joe Searles, treasurer of the organization, opines that with the annual dances being the only source of revenue to finance the unit, it may take some time to secure all the hoped-for salvage and disaster equipment desired to complete the car; however, a program has been laid out to place the vehicle on display before each of the many fraternal organizations, Granges and civic bodies in the city and smaller communities throughout the County, and this, it is hoped, will help foot the bill.

## Emergency Unit Well Equipped

*Fire Engineering* receives many requests for inventories of equipment carried on light emergency and rescue units. The number and variety of devices employed by first aid and rescue squads apparently is growing continually. Also, although squad units apparently are increasing their facilities, they are finding new places and ways to stow and carry this equipment without sacrificing utility.

A case in point is the Emergency Unit of the Monticello, Iowa, Fire Department, of which Paul G. Hearn is Fire Chief.

The vehicle (pictured) is a seven-passenger sedan which was at one time an ambulance of the University of Iowa Hospital. The local firemen, aided by public and private funds over a period of four years, converted the vehicle to their own needs and added the equipment, which represents an investment of about $4,000.

The unit responds to all fire calls and on special emergency and accident calls. However, the fire department says it is "not in the ambulance business," although it is equipped to carry four men and a patient.

Here is the list of equipment carried on the vehicle:

1 E & J resuscitator
2 Extra oxygen tanks for resuscitator
1 Scott air-pack
1 M-S smoke mask
1 20-lb. dry chemical fire extinguisher
1 5-gal. Indian back pack fire extinguisher
1 Ambulance cot
2 Stretchers
Complete river dragging equipment
Complete cutting torch with tanks and carrier
1 2-ton Porto power with attachments
1 5-ton hydraulic jack
1 14 ft. x ⅝ log chain
1 6" block and pulley
1 16-ft. extension ladder
2 Asbestos fire suits
3 Blankets
4 Sheets
1 Pillow
4 Pillow cases
1 Large hand lantern
100 ft. ½" rope
100 ft. ¼" rope
10 Straps 1½" wide from 2 ft. to 10 ft. long
3 12-qt. pails
2 Short handled round point shovels
1 Fireman axe
1 Hand saw
1 Large wrecking bar
1 5-ft. pinch bar
1 Large first aid kit
6 Sand bags
1 Complete set adjustable splints
1 Set flares—flags and fuses
2 Pair rubber boots
2 Rain coats
2 Steel helmets
Assorted wood blocks
Small tool roll made of canvas with pockets sewed in
Tools in tool roll
1 Pry bar
1 Hack saw
6 Hack saw blades
1 8 oz. ball peen hammer
1 1½-lb. blacksmith hammer
1 15" Crescent wrench
1 10" Crescent wrench
1 6" Crescent wrench
1 Brace
1 Extension bit
1 Hand axe
1 Claw hammer
2 Wood chisels
2 Cold chisels
2 Pair pliers 6" and 10"
1 Pair side cutters
1 Pair tin snips
1 Key hole saw
1 Set Allen wrenches
1 14" pipe wrench
1 10" pipe wrench
1 Jack knife
1 Flash light
2 Door keys
4 Screwdrivers, 4", 6", 8", and 12"
3 Phillips screwdrivers Nos. 1, 2, and 3 blade
2 Files
1 Pair 8" vice grip pliers

## Vamps Get Aid of Organized Labor

The Kingsville, Texas, Volunteer Fire Department is the happy recipient of a new panel emergency truck, thanks to various local organized labor groups.

The volunteers are constantly striving to render a greater assistance to their community, not only in fire suppression, but in the saving of lives from accidents. Not only does management but employees of local businesses realize that time lost by workers because of fire or accident, or both, is an economic drain on the community. Anything, therefore, that will improve working conditions and keep more men at work longer times is an economic benefit.

At least that's the way organized labor reasoned, and came up with their gift of the panel emergency unit, complete with inhalators, masks, oxygen supplies, cutting torch, grappling hooks and other first-aid facilities.

This isn't the first time members of union organizations have supported fire fighters with substantial financial contributions, but it is one of the first times on record where a number of such organizations banded together to support a small town fire department composed entirely of volunteers.

Here is the list of contributors: Brotherhood of Railway Carmen of America; Brotherhood of Railway Clerks; Colored Trainmen of America; United Brotherhood of Carpenters and Joiners of America; Communication

(*Continued on page* 984)

Emergency truck presented to Kingsville, Tex., Fire Department by labor organizations.

## Fire Burns Chileans Into Better Homes

The mythical phoenix bird lives in Santiago, Chile. That was the feeling of some 1650 Santiagoans who were burned out of their homes, only to find that the flames had also "put the heat" on bureaucrats who thereupon allowed the victims of the fire to move into new quarters from which they had been kept by official red tape for years.

One night the "wrong side of the tracks" in Santiago, Chile, in a particular area of 400 huts made of wood and paper, just went up in smoke and flame. No one knows how the fire started, but a stiff wind helped to spread it through the kindling wood dwellings. Not even the arrival of the Bomberos (as the firemen are called) could save the quarter from almost total destruction. While the frightened residents saw their homes and possessions go up in flames, the Bomberos searched for any unfortunates who might have been left behind. They could not put out the flames with their inadequate equipment.

By next morning the people, who had once called the smoking ruins their homes, stood by assessing the damage. The verdict: 100% loss for most, a few scattered items saved by others. The important problem was where to find shelter.

Ironically the shelter was waiting. Recently constructed apartments were being opened to new residents after being processed through a maze of red tape. But the situation of the 1650 burned-out residents of the "Callampas," as the old quarter was known, allowed no time for bureaucratic buck-passing.

The crisis carried the day. The new homes were opened to the victims of the fire and there was a general rejoicing. Despite the loss of personal goods and the fright and upheaval of the conflagration, the only comment heard around the Callampàs on moving day was, "Thank God for the fire. Thank God for the fire."

More than 1600 persons were left homeless by a raging fire which swept a poor residential section of Santiago, Chile, recently. Photo shows residents attempting to salvage their belongings as smoke rises from the burning area in the background.

Ruins of fire-swept Callampas District in Santiago, Chile.

Refugees from burned out Callampas District of Santiago move into new housing.

## FCDA Moves

The Federal Civil Defense Administration moved its national headquarters office from Washington, D.C. to Percy-Jones Army General Hospital at Battle Creek, Mich., early in September.

It was decided that as long as the agency was preaching the protection of life and property by dispersion it was time it moved itself out of one of the nation's prime target areas. At Battle Creek, FCDA will occupy a substantial roomy building with plenty of space for expansion. The Army has abandoned the installation there.

A good share of the 496 employes in Washington were uprooted, but the Administration will maintain an office and sizable staff in the Capitol to maintain liaison with other Federal agencies. Approximately 25 FCDA officials will remain in Washington.

The move had been under consideration for some time with other sites in view before the Michigan location was chosen. FCDA had its eye on Indiantown Gap, Pa., Grand Island, Neb., and Camp Atterbury, Ind.

Lloyd Layman, Director, Fire Office, Technical Advisory Services, and Kyle Laughlin, Specialist in Terminal Research and Weapons Effects, both well known to the fire service, have already established themselves in Battle Creek. The new address of the FCDA is: Federal Civil Defense Administration, National Office, Battle Creek, Mich.

## Firemen in New York State

The fire service of the State of New York consists of 1,589 fire departments with a volunteer membership of 110,835 and paid personnel of 15,938, manning approximately 5,100 pieces of fire equipment.

It may surprise many persons who think of volunteers only in relation to towns and villages and fire districts to know that there are in the state volunteer fire companies in 62 cities.—N. Y. State Temporary Commission on Fire Laws.

## Bristol Broadcasts Fires to End Phone and Traffic Tie-Ups

For years fire fighters have watched with growing apprehension the increasing interference encountered by fire units responding to fires and other public emergencies. And of equal concern is the interference to their fire control operations encountered by firemen on the fire ground.

**Bristol, Conn., Fire Department Dispatcher Charles J. McLaughlin informs announcer at local Radio Station WBIS of details for a "Signal 12" broadcast. He has just received information via radio from Engine 5 on the fire ground about a small local fire.**

There have always been those who thrill to the response of fire apparatus, and those who must get their nose into every fire fighting operation, big or little. Their name is legion, and they are anathema to the fire chief, and to the telephone exchanges whose switchboards are jammed up with every serious disaster—and some not so serious.

These fire chasers are headaches to fire fighters, telephone representatives and others whose lives have been made miserable by the senseless telephoning for information whenever a fire siren is heard, or an idle rumor about a "big fire" gets into circulation.

So serious has this situation become that the International Association of Fire Chiefs, and most of its regional divisions, as well as the New England Association of Fire Chiefs, have adopted strong resolutions decrying the situation and urging that broadcasting stations refrain from putting on the air the accounts of fire, until and unless advocated by the fire chief in charge of the particular operations.

These requests generally have also come to naught, for still the crowds of curious increase to handicap fire fighters. Even threat of arrest of those who follow apparatus too closely, or those who invade fire lines or otherwise interfere with firemen in discharge of their duty, has failed to stem the onrush.

With consciousness of the evil, and in an attempt to ameliorate it, various experiments are being tried out by full time and volunteer fire fighters. Latest to come to the attention of this Journal is a cooperative program by the Bristol, Conn., Fire Department, Chief George Graham, and Radio Station WBIS of that city.

At Fire Headquarters, the short-wave radio on the dispatcher's desk crackles, sputters into life. "Signal 12 Signal 12 Engine 5 reporting. You getting me Charlie?"

The dispatcher: "Come ahead Bill."

"Two fourteen Lake Avenue. A brush fire."

The dispatcher echoes it: "Two fourteen Lake. A brush fire."

The dispatcher picks up his telephone receiver hanging at the right of his desk. A bell automatically rings at the other end of a direct wire to the Control Room of Radio Station WBIS. The Dispatcher gives the radio announcer the information: "A brush fire at 214 Lake Ave." adding "It is a small fire and under control."

The radio station announcer enters it in his log sheet, and turns to his mike. Incidentally, his log sheet is a duplicate of that in use by the Fire Alarm Dispatcher.

Listeners on the WBIS program at the time hear this: "We interrupt this program to bring you this official fire department Signal 12 announcement.

*"This is an official signal* 12 *announcement.*
*"The Bristol Fire Department responding*
*"to a (TYPE ALARM)—Box Alarm—*
*"has reached the scene of the fire. It is a*
*"(TYPE Fire)————Brush fire————*
*"located at* ————————————
*"(LOCATION)——*214 *Lake avenue——*
*"Answering the alarm were Engine Companies number one and two and the Welch Company."*
*"The fire is apparently a*————————
*"(EXTENT OF FIRE) small fire and under control.*
*"This official Signal* 12 *announcement was presented in the public service. We now return you to Melody Magic, the program already in progress."*

That is "Signal 12" and how Chief Graham and the staff of Britsol's own local independent daytime radio station solved (or believe they have solved) a problem that has been a pain to the fire department, and a threat to life and property as well as firefighters in the city of Bristol.

Of course this is not the entire story. A big factor is the educating of Bristolites on the intent and purpose of the plan. This was done by Chief Graham —who incidentally is president of the New England Association of Fire Chiefs, and Eric Stowe Hatch, president and general manager of the radio station WBIS.

Radio listeners were told on the air and in newspaper announcements about the program. Dispatchers at both Fire and Radio Headquarters were told to advise all phone callers with requests for information about fires, to tune in on 1440 on their radio dials.

Now after some six months trial, when an alarm sounds in the industrial city of Bristol (pop. 80,000, including city and suburbs) there is no dangerous traffic jam because there is no need for a person to emulate a fire engine in order to get the details of every fire. And there is also no choking of telephone services, either in lines to fire headquarters, police, newspapers or radio authorities.

## Chief J. K. Piercey Elected President of the P.C.I.M.A.

Fire Chief J. K. Piercey of Salt Lake City was elected president of the Pacific Coast Inter-Mountain Association of Fire Chiefs during the group's four-day 59th annual conference in Long Beach, Calif.

Other officers of the Association include: Chief S. H. Edmundson of Pasadena, first vice president, replacing Piercey; and Chief J. T. Caldwell of Ellenburg, Washington, was named second vice president.

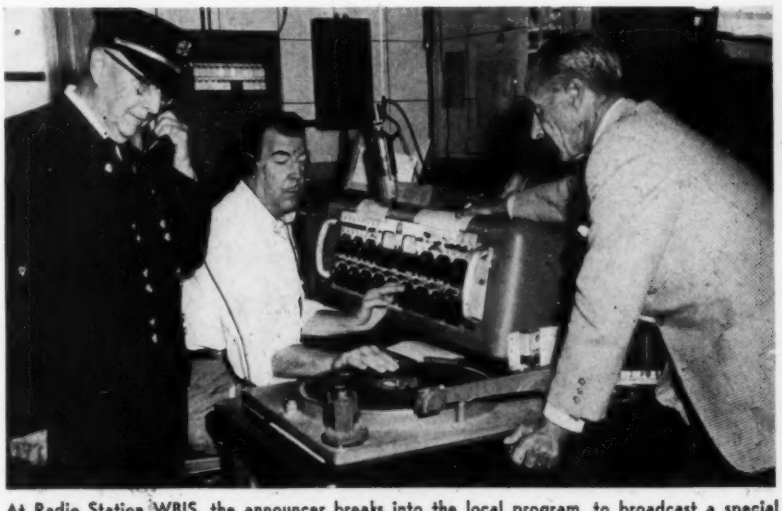
Chief Piercey succeeded Chief J. Lyle Stevenson of Stockton, Calif., who becomes a member of the board of directors.

Chief Jay W. Stevens of San Francisco was reappointed secretary-treasurer of the association for the 34th time.

Nearly all 350 of the chiefs who attended the conference visited Camp Pendleton to witness "Operation Fire Stop," a demonstration of a research project backed by the association.

The project, directed by Keith Arnold of the University of California, seeks to determine the best ways of controlling and extinguishing fires in the wilderness or other inaccessible places. This includes new uses of helicopters, water bombing, backfiring and methods of laying hose into rough country.

PAUL C. DITZEL



**At Radio Station WBIS, the announcer breaks into the local program, to broadcast a special "Signal 12" bulletin to all listeners, as Chief George Graham takes details over direct phone to fire headquarters. Eric Stowe Hatch, President and General Manager of Station WBIS is an interested observer.**

## Alexandria House Inspection Turns Up Queer Case

Alexandria, Va., promotes a house to house inspection, carried on by the Alexandria Fire Department Fire Chief Bernard J. Padgett, which recently turned up an unusual case.

Stairway piled high with junk which firemen found in making their inspection of house.

The story is best told by the photographs, taken by the Bureau of Fire Prevention of the Department, which under Captain John L. Mellon, is in direct charge of the inspection.

The house in which the jumble of junk was uncovered strangely enough is located in a primarily residential area and from all outward appearances, was well kept and presentable. It was only after one entered that the chaos met the eye.

According to the department, the "nice home" was formerly occupied by a woman of about 50 and her two daughters, one 16 and the other 20. How they managed to live is a mystery to the inspectors.

According to Chief Padgett, if a fire had occurred in this house while residents were there, lives would surely have been lost.

## Sutton, Que., Recipient of Unusual Honors

The tiny village of Sutton, nestled in a Quebec extension of the Green Mountains of Vermont, has what is rated as the best fire department of any village of its size in Quebec, and second of all those in Canada.

That rating is attested by the selection of the little community (population 1,500) in the annual contest held by the Dominion Fire Prevention Association.

Even Fire Chief Jack Sheperd of the local department and his 22 volunteers weren't sure of their good fortune until it was made official before some 65 guests, many of them distinguished leaders in the Dominion's fire service at the special dinner party given in honor of the awards and their presentation, in Grace Church parish hall. Then, indeed, did the good Chief and his "team" realize their achievement.

The certificate was presented to Mayor Robert S. Miltimore of Sutton, and the Fire Department, by F. X. Ahern, deputy fire commissioner of the Province of Quebec. It read: "The village of Sutton is hereby awarded first place in the Province of Quebec, Class F, second place in the Dominion of Canada, Class F, nineteenth place among all competing Canadian municipalities."

Other celebrities at the dinner were C. A. Thompson, Dominion Fire Commissioner; A. Leslie Ham, manager Dominion Board of Underwriters, Montreal; Jean Belanger, vice-president of Quebec Police and Fire Chiefs Association; Chief Albert Raymond of Stowe, Vt., president of the Vermont Fire Chiefs' Club.

The Sutton Fire Brigade, as it stands today, is said to be largely the work of former fire chief George A. Morrison who was first to submit Sutton's entry

(*Continued on page* 985)

Top (left and right): Before and after inspection views of the living and dining rooms. Bottom (left): One of the bedrooms at the time firemen made inspection. Bottom (right): Outside of house.

Ruins of the $1,000,000 fire which swept through a business block at Beverly, Mass., on August 10.

## Beverly Fights Worst Fire

Characterized as the worst fire in the history of Beverly, Mass., a blaze of suspicious origin on Aug. 10 swept the expansive Beverly National Bank and two adjacent buildings, causing an estimated $1 million loss. Twenty-three firemen were injured.

The fire, in the Ellis square district, completely ruined two of the city's banks, the National and Cooperative, wiped out Almy's, the community's leading department store, in addition to destroying the new Cor-Nix Rubber Co. and scores of offices and suites of the state public works department and Beverly Chamber of Commerce on the second floor of the row of brick-joist two-story structures.

The fire was another example of unstopped sub-roof spaces providing a flue for the flames, which spread faster than fire fighters from a number of communities could cut them off.

The general alarm fire was discovered by a member of the Sisters of Notre Dame Roman Catholic order, who was aroused from her sleep at the nearby St. Mary's Convent on Chapman street. She thought her building was afire and notified the Central Fire Station, which at 4:18 a.m. dispatched equipment in charge of Deputy Chief C. Fred Dooling. He ordered an immediate box alarm from Box 231.

Efforts to reach the heart of the fire, once the source of the heavy smoke had been generally located, were futile. Firemen attacking in a driving rainstorm, which held down the smoke cloud, were driven back down the stairway separating the bank and department store, by the heat and smoke.

At 4:30 a.m., twelve minutes after the first box alarm, Chief Dooling sounded Box 231, constituting a general alarm, which brought all off-duty men to the scene. The Salem and Danvers, Mass., Fire Departments were called shortly afterward as the fire continued to mushroom through the two-story building at Cabot and Federal streets. As the struggle continued, fire forces also responded from Peabody, Gloucester, Wenham and Manchester.

The fire, which Chief Dooling stated must have been smoldering for many hours before being discovered, made headway from its apparent starting point between ground-floor National Bank quarters and upstairs offices of state public works department. From this point, once it had hold of the 4-foot cockloft, the fire ate its way along the block, leaving in its wake destruction of offices on the top and mercantile places on the first floor.

A brisk wind carried heavy smoke as far away as Danvers. The fire managed to jump partial fire walls in two sections of the building. As it bored its way, three large ceilings collapsed into rubble. Meanwhile, the tons of water that were thrown into the structure added to the damage.

Aerial ladders from Beverly, Salem and Manchester were employed on three sides of the brick and wood bank building, and heavy streams were directed over the roof area and into upper floors. But the fire ate on. All told, some 24 lines of 2½-in. hose were in operation. In addition, two deck guns were utilized.

Firemen from three communities were injured in the long battle—fortunately, none seriously. Casualties for the most part were from smoke inhalation, but several suffered eye injuries, punctured feet, lacerations and burns.

Extra police and auxiliaries, and civil defense workers maintained crowd and traffic control and served the tired fire fighters refreshments.

*Acknowledgement: The Editors gratefully acknowledge the assistance of Hardee G. V. Day in providing data for this account.*

## Foam Saves Another Plane

In the August, 1954, issue of this journal there appeared a report on how fire foam was employed at Hill Air Force Base, Utah, to bring a plane to a safe landing. On September 17, the same procedure was employed at Otis Air Force Base, Falmouth, Mass.

The base fire department "greased" a runway with fire foam, perhaps saving the lives of two air officers and a $450,000 plane.

A wheel had jammed on a jet and disaster beckoned when the plane came in.

But the fire department laid down a layer of foam 30 feet wide and 1500 feet long and the pilot, 2nd Lt. Anthony W. Cunningham, 23, was able to slide the landing wheel down the gooey runway without ground-looping. With him was 2nd Lt. Joseph J. Gallagher, 22.

Fire fighters work from ladders at Beverly Co-Operative Bank and adjoining stores as general alarm blaze swept the National Bank Building in the heart of the city.

## Volunteers Train with Industrial Brigade

Effective cooperation between municipal and industrial fire fighting teams was demonstrated recently at the Pearl River, N.Y., plant of the Lederle Laboratories Division, American Cyanamid Company, when fire companies and ambulance corps from the neighboring towns of Pearl River and Nanuet joined the Company's fire department in a fast-moving combined drill.

The drill centered on a simulated fire condition in one of the pharmaceutical firm's largest buildings. It was designed to acquaint the two municipal fire departments with the special fire fighting facilities available at Lederle as well as to anticipate possible problems which might be encountered under actual fire conditions at the huge plant.

Similar cooperative fire fighting demonstrations throughout the nation have been urged by the Chamber of Commerce of the U.S. and the National Board of Fire Underwriters as an effective part of fire prevention. According to these organizations, fires last year cost the nation thousands of lives and nearly $1 billion.

Participating in the drill were the Pearl River Fire Department, under Chief Howard Johnson; the Nanuet Fire Department, directed by Chief Walter Knapp; the Lederle Fire Department, with Chief Lester H. Shuart in charge; the Pearl River Alumni Ambulance Corps and the Nanuet Community Ambulance Corps.

The problem to which the drill was devoted dealt with an imaginary blaze in the fourth floor of a six-story manufacturing and packaging building. The operation involved advancing hoses up the various stairwells to the area of flames. Ambulance crews at the scene practiced removing casualties from the problem area to the ground floor where first aid was given.

Following the drill, officials reviewed the problems encountered and the cooperative alarm system that has been instituted for such an emergency. The Pearl River Fire Department's alarm system is tied into Lederle's system and the alarm turned in at the problem area simultaneously alerts both the Lederle and Pearl River Fire Departments. At the scene of the fire, the Nanuet Fire Department is contacted by radio for assistance, a procedure worked out by the three fire departments.

Officials were also briefed on the extensive and special fire fighting facilities at Lederle. The Company's equipment includes two trucks, with special devices for handling chemical blazes, and a brigade of six full-time firemen and 45 volunteer employees (who are compensated for time spent in training and actual fire fighting). The fire protection system includes between ten and twenty miles of plant-wide alarm wiring and a huge network of hydrants and special safety equipment.

The elevated water tank, a landmark at the north end of the Company's main parking lot, has a capacity of 100,000 gallons and is used only for fire protection purposes. It is connected to a fire main loop serving the major group of buildings in the plant. If the tank is exhausted, two electrically driven fire pumps, each with a 750-gallon per minute capacity, automatically start to supply water from city mains within the plant into the fire main loop. Additionally, another storage tank can discharge 250,000 gallons of water via two fire pumps, one gasoline-driven and one electric, into the fire main loop.

Six-story building at Lederle Laboratories was scene of recent fire drill highlighting cooperation between industrial and community fire departments. Fire departments of Pearl River and Nanuet, N. Y., joined with Lederle Fire Department in the combined drill.

Ambulance crews from communities of Pearl River and Nanuet, New York, recently joined with their municipal fire departments and the fire department of Lederle Laboratories in a combined drill at the Lederle plant at Pearl River. Here, ambulance corps from Pearl River gives first aid to mock casualty.

## Fire Levels Grain Elevator

Fire of unknown origin destroyed the Baumgartner grain elevator and grinding mill at Goldsmith, Ind., on Sept. 3. Loss was estimated at over $100,000.

First indication of a fire came from an automatic siren atop the frame structure. It sounded a short blast, then stopped, according to workmen in a nearby shop. After about two minutes of silence, the siren again sounded, this time remaining on for approximately ten minutes.

After that, apparently, the fire had destroyed the wiring of the apparatus.

When the siren sounded for the second time, employees of neighboring plants left their work to see smoke and flames pouring from the top of the elevator.

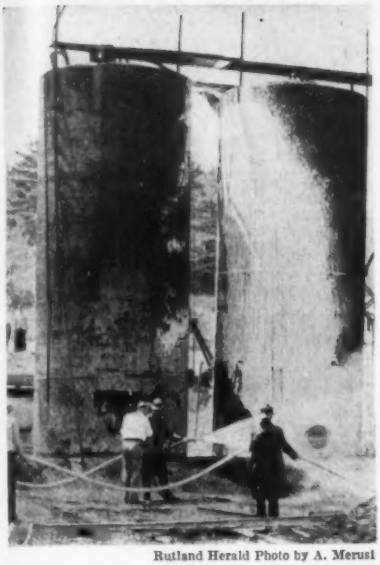
Elevator employees had been working in the grinding room, and firemen said it is possible the fire started there.

Firemen from Tipton and Sharpsville who answered the call to the fire were helpless to halt the blaze. They concentrated their efforts, as soon as they realized there was no hope of saving the elevator, on preventing the spread of the fire to nearby houses.

The elevator blazed for more than an hour before collapsing.

The elevator fire followed closely on the heels of a shed fire at 429 Poplar street in Tipton, after three days of no fires at all.

To round out the day, the firemen answered still another call at 6:35 P.M. to put out a trash fire which had gone out of control at Compton and Son on East Jefferson Street.



Rutland Herald Photo by A. Merusi

**Firemen used foam and water fog to extinguish fire.**

## Four Killed in Asphalt Plant Blast

*"Not considered desirable insurance."* That is the way Dominge & Lincoln described Asphalt works in their book "Fire Insurance Underwriting and Inspection."

Another authority sums it this way: Asphalt plants have been decidedly unprofitable to the insurance companies. Most experienced underwriters are "wise" to the physical hazards encountered in melting and fluxing asphalt. It is a well known fact that fires once started are hardly ever extinguished.

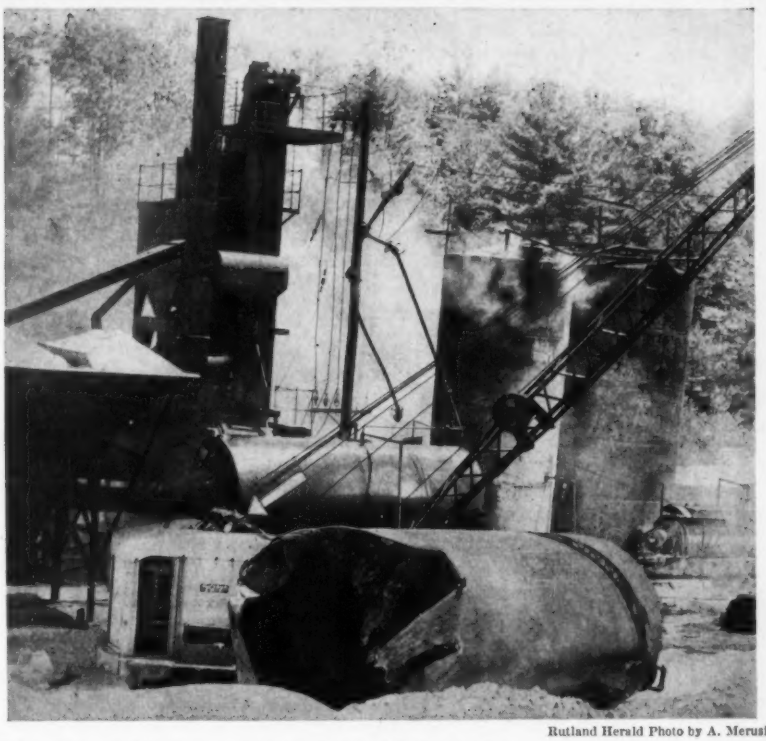
Many a fire officer will agree with these authorities, having encountered an asphalt fire at some time in his career. Few, however, have experienced the powerful and deadly explosive power of the product or its processing.

The latest such incident occurred June 16, last, in Florence, Vt., near the Loveland Quarry, a few miles from Proctor and Rutland. Four men died in the blast of a partially-filled asphalt tank which rocked the "hot mix" plant of the Vermont Marble Co.

According to Corporal Charles Walker, an inspector for the state fire marshal's office, the four men who were killed had been working on top of three 16,000-gallon steel storage tanks, set upright in a line running north and south at the plant. The southernmost tank contained one truckload of asphalt, about 3000 or 4000 gallons, in it, while the other two were empty.

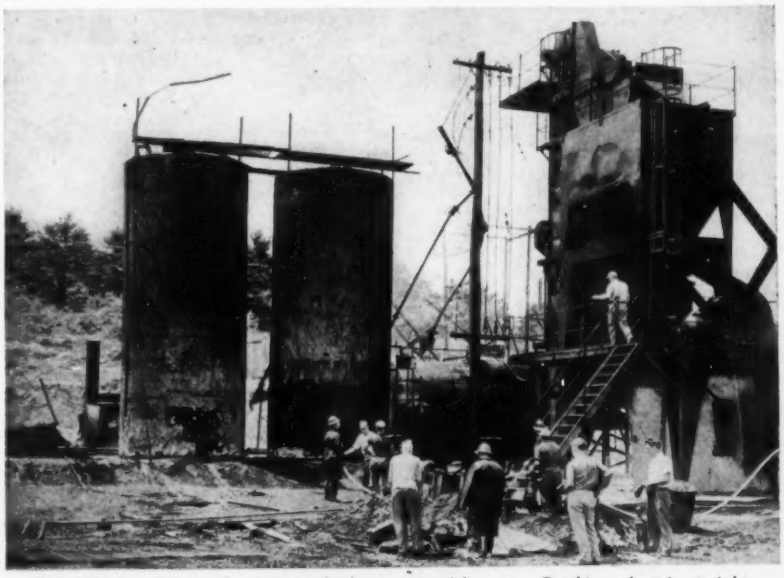
The cause was attributed to an electric welder. They found the electric welding stick stuck to the sides of the tank, and the mark left by an electric arc. It was said one of the men was lowering an electric welding torch used by one of the victims, to the ground by a cable before going to lunch. It is believed the welding torch in the process of being lowered came into contact with metal causing an electric arc in the area containing explosive fumes.

The generator used in welding operations was on the ground and had not been turned on before the men started to lower the torch.



Rutland Herald Photo by A. Merusi

**Picture taken before firemen went to work, and before bodies were recovered. Arrow points to one victim.**



**General view of area, showing one body on ground by men. Crushing plant is at right.**

The inspector said the asphalt in the tank was "cut' 'with a trade product called "MC2½" which was either a naphtha or kerosene base, supplying the explosive vapor.

The asphalt had been heated to about 150 deg. F. by coils in the base of the tank through which hot oil was circulated. The material had been loaded in the tank two days before the blast, and was being heated for the first operation of the plant the following day.

According to the inspector, the normal temperature of asphalt during regular operations is 175 to 200 deg. F., and as stated by the representative of the mix plant equipment, of Indianapolis, Ind., the asphalt can be heated to 300 deg. F. before there is danger of internal explosion without an outside source of ignition. Because heat increases the amount of explosive fumes present, the possibilities of explosion were not as great at the time of the blast as in normal operations, the inspector stated.

(*Continued on page* 995)

# News of the Manufacturers

## Quaker-Pioneer Merge Operations

The West Coast operations of Quaker Rubber Corporation and its recent acquisition, Pioneer Rubber Mills, Pittsburg, California, will be merged at once under the name Quaker Pioneer Rubber Mills, Division of H. K. Porter Company, Inc., according to an announcement by G. A. Dauphinais, Vice-President and General Manager.

Quaker Pioneer Rubber Mills will handle all the sales, manufacturing, and service operations of both companies in ten Western states. The Pioneer and Quaker sales organizations will be combined in the East and operated under the Quaker Rubber Corporation.

## Portable 1000-Gallon Reservoir

Though on the market for but a comparatively short time, the new portable, 1000-gallon Fol-Da-Tank water reservoir is gaining acceptance in rural fire districts where water supply is a problem.

The tank was designed to meet the hard usage fire fighting equipment is called upon to give. The frame of ¾-inch welded steel tubing is so constructed as to fold to the compact overall dimensions of 10 inches by 30 inches by 99 inches. The liner (or tank) is of No. 10, 3-roll waterproof treated duck with treated seams. Tank is laced to frame for removal and cleaning. The entire unit weighs 119 pounds.

The manufacturer states that two men can have it off the truck and pumping water into it in less than 60 seconds; also that one man working alone can manage to set it up in but little over that time.

One of the features of the tank is its spillway which empties the tank in less than one minute. This is accomplished by pulling a draw cord which lowers a sizable portion of one side of the tank.

Probably the most important use of the tank is that of a portable, auxiliary water supply which releases the tanker to transport more water as long as the need exists. The pumper or portable auxiliary pump draws water direct from the tank, which may also provide standby protection in cases where fire is a temporary but constant threat as at carnivals, fairs, and the burning of waste farm products such as cobs.

Additional information on these tanks may be secured from Fol-Da-Tank Company, Box 361, Rock Island, Ill.

## Jack Little General Manager of Samuel Eastman Co.

George E. Robinson, president of Samuel Eastman Co., Inc., Concord, N. H., has announced the appointment of Jack Little as general manager of this one-hundred-year-old firm. Mr. Little has had wide experience in the fabrication and sale of brass and brass goods with major manufacturers.

## New Pressurized Dry Chemical Extinguisher

The Fyr-Fyter Company of Dayton, Ohio, recently announced a new 5-pound pressurized dry chemical fire extinguisher. It is designed for quick, easy, one-hand operation. The dry chemical is completely discharged in less than 12 seconds by pressurized air or nitrogen. A specially designed angular diffuser nozzle spreads the chemical in a flat, 10 to 12 foot long, and 60° wide angle stream.

The entire valve assembly and pick-up tube of the extinguisher unscrew as a unit from the shell to simplify inspection, cleaning and recharging. The large valve unit opening in the dome also serves as the "filler" opening. A specially designed tapered shut-off pin and tapered seat are lined with hard rubber to make a leak-proof valve mechanism that holds the air or nitrogen pressure charge. A visual gage shows pressure condition.

## Flomax Portable Pump

Marine Products Company of Detroit recently announced the introduction of its new Flomax 10 self-priming centrifugal pump. The pump is rated with maximum capacity of 10,980 gallons per hour. The iron unit, powered by a Wisconsin AKN engine and mounted in a special protective carrying frame, weighs 151 lbs.

The manufacturer states that the Flomax 10 utilizes a new type of super-hard mechanical seal requiring no maintenance. The pump is said to incorporate the "open-adaptor" construction found

New Flomax portable pump.

in all Marine Products portable pumps. This construction provides readily visual inspection, ample free working space, and protection to the engine from stray pumpage.

The *Flomax* 10 is available in cast-iron construction for erosion resistance, and all-bronze construction for corrosion resistance.

Detailed specifications may be obtained by writing the Marine Products Company, 515 Lycaste Avenue, Detroit 14, Michigan.

## Disaster Equipment

"Disaster," a new booklet designed to assist industrial plants in choosing safety and rescue equipment for use in emergencies has just been published by Mine Safety Appliances Company of Pittsburgh, Pa.

While the booklet makes no attempt to outline the organization of a disaster-control plan, it does assume the exist-

Left: Setting up Fol-Da-Tank. Right: Fol-Da-Tank in use.

ence of groups or teams within a plant whose job it is to effect rescue and recovery operations in case of tornados, fires, explosions, or other types of emergencies. It is published to show just what items of equipment are needed by these teams.

Separated into five sections, the MSA booklet discusses the equipment needs of a rescue team, an engineering team, and a medical team, and contains a table-of-equipment check-chart for quick reference. It also has a catalog description and picture of each item recommended.

Copies of the booklet, Number 5000-4, can be obtained from Mine Safety Appliances Company, 201 North Braddock Avenue, Pittsburgh 8, Pa.

## Fyr-Fyter Acquires Superior American Fire Alarm

William M. Wetzel, Chairman of the Board of The Fyr-Fyter Company, Dayton, Ohio, manufacturers and distributors of fire extinguishers, nozzles, hose couplings and other products in the fire protection field, announced the purchase as of August 31, of the inventories, dies, tools, trade names, copyrights, etc., of the SAFA (Superior American Fire Alarm) Division of the Revere Corporation of America, Meriden, Connecticut. This acquisition is in line with the policy of the Fyr-Fyter Company to continue to broaden its sphere of operation in the fire protection field.

Facilities are being established in Wooster, Ohio, for the manufacture and distribution of the municipal fire alarm and central station equipment, this business to be operated as a division of the Fyr-Fyter Company. The plan is to develop and broaden the division's activity in the alarm and related markets. James J. Dunleavy, Vice President of The Fyr-Fyter Company, in addition to his duties as General Manager of Fyr-Fyter's Wooster Brass Division, will assume executive control of the new SAFA division with Hugh Smith functioning as General Manager.

Mr. Wetzel stated that Fyr-Fyter's volume for the year to date is in excess of its sales for the previous year and that the addition of this division into the Fyr-Fyter organization will further strengthen its position in the fire protection industry.

Harry S. Samuels, 19 W. 44th St., New York City, was the broker in the transaction.

## New Burn Spray Packet

Medical Supply Company announces a new way in which one can economically combine the burn spray first aid requirements with the standard unit type first aid kits.

Medical Supply Company, of Rockford, Ill. is offering a practical and efficient burn spray first aid packet, containing a spray gun and ten 2/5 ounce refill cartridges containing the burn first aid solution. These packets will fit into any size unit type first aid kit, requiring six unit spaces. Also, it may be used as an individual unit in itself, for which a special carrying case has been designed.

The spray gun is ready for operation merely by loosening the bottom cap, inserting a pressure cartridge, tightening the cap, and pressing the trigger. The spray gun is molded to fit the hand for ease of operation, it is permanent equipment, and refill cartridges may be obtained to keep the packet complete at all times. Each 2/5 ounce cartridge will afford coverage for approximately 144 square inches of burned area.

This new spray packet is sanitary to use, easy to operate, in addition to being fast and painless in its method of spray application. It is available with either Americaine or Kip Antiseptic Oil. Medical Supply Company laboratory facilities are available to determine the adaptability of other burn first aid solutions to this unique spray dispenser.

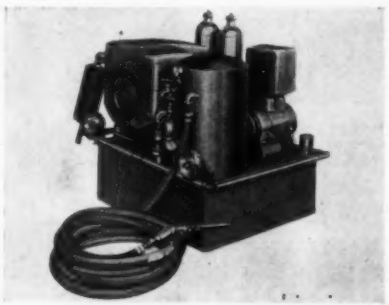
## Versa-Power Fire Fighting Unit

A new portable fire-fighting unit, combining fire-extinguishing and production of electric power, was recently announced by the National Alarms Corporation, Lafayette, Louisiana.

Named Versa-Power, this multi-purpose unit is powered by a 3,500-watt, A. C. Onan electric generating plant. This gasoline-engine-driven generator is the "heart" of the apparatus, providing power for the pressure pump and floodlights, and also serves as a source of portable or emergency electricity for communications, electric tools, etc.

Versa-Power utilizes Unox wetting agent which multiplies the effectiveness of the water as a fire extinguishing medium.

The makers state that Versa-Power is ideal for such applications as civil defense where both auxiliary fire-fighting equipment and emergency electric plants are priority items; for municipal-



Versa-Power fire fighting unit.

ities and villages where because of its portability and small size it can be used in various departments; for railroads where "VP" units can be mounted on a rail car and easily taken to the site of any trestle fire or similar emergency.

## New Hose Catalog

A new catalog in color, covering the Boston line of industrial fire hose and fittings, has been announced by the Boston Woven Hose & Rubber Company.

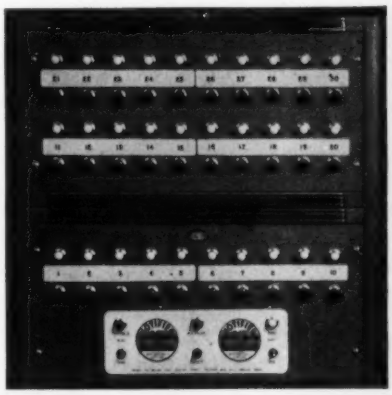
The new hose catalog was designed to include construction details and illustrations of the complete line of fire and suction hose, extinguisher tubing, and fire hose couplings. The eight-page folder lists specifications for each type of hose as to size, weight, construction, and recommended use and working pressures.

This catalog is the second of a new series of Boston hose literature, distinguished by product classification. Copies may be obtained by writing to Boston Woven Hose & Rubber Company, P. O. Box 1071, Boston 3, Massachusetts.

## Fire Station Receiving Panel

Notifier Manufacturing Company at Lincoln 8, Neb., has announced a remote control and fire station receiving panel listed by Underwriters' Laboratories with control units and with or without supplementary annunciator units for use with their listed thermostats and bells to form a supervised fire alarm system. This supervised system has also passed all tests for Factory Mutual Laboratories listing.

The Notifier Fire Station Receiving Panel is so designed that all fire detection and associated wiring is supervised



Notifier Fire Station Receiving Panel

against shorts, single or double breaks, and power failure. This feature makes it possible to tie in sprinkler supervisory equipment.

The instant a fire signal is initiated on the local protected premises, the signal is flashed to the auxiliary control panel. At the same instant the auxiliary control panel transmits the signal to the fire station, the alarm bell rings, and the lights flash indicating which building has a fire condition. According to the manufacturer, this entire signal reporting action is accomplished within thirty thousandths of a second. Reporting is entirely automatic. Due to this prompt action, the fire department is not hampered by a delayed alarm. Notifier Manufacturing Company is now in full production on this equipment.

## New Marlow Fire Pump Bulletin

Marlow Pumps has just issued a new, comprehensive bulletin on portable fire fighting pumps. The new bulletin is generously illustrated. Performance data and curves are presented along with pump and gasoline engine specifications. A photograph with diagrams shows how the pump operates and is keyed to a list of construction features.

The bulletin is available free on request. Write to Marlow Pumps, Division of Bell & Gossett Company and

(*Continued on page 949*)

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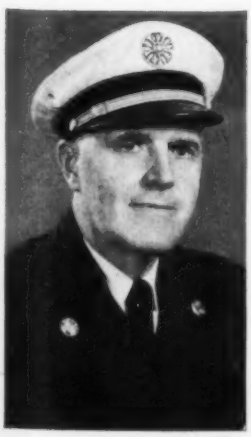

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## Navy to Sponsor Fire Extinguishment Research Symposium

The Bureau of Yards and Docks of the Navy Department is sponsoring a "Symposium on Fire Extinguishment" to be held at the U. S. Naval Civil Engineering Research and Evaluation Laboratory, Port Hueneme, Calif., on Nov. 16-17-18, 1954.

The Symposium will be broad in scope and emphasize problems, research and requirements for operation on military bases. Representatives of various military services, research centers, professional fire technologists and manufacturers of related equipment are invited to attend. Requests for detailed information should be addressed to Officer in Charge, Code 794, U. S. Naval Civil Engineering Research and Evaluation Laboratory, Construction Battalion Center, Port Hueneme, Calif.

On Tuesday, Nov. 16, following the welcome to the visitors, Chairman Orville Emory, Head Fire Protection, Base Maintenance Div., Office of the Chief of Naval Operations, will introduce keynote speaker Richard L. Tuve, Chief, Engineering Research Branch, Chemistry Div., Naval Research Labs.

The Army and Navy will present their fire extinguishment research programs, followed by a luncheon and demonstration and a discussion of crash-rescue problems, after which there will be an Air Force presentation.

Chairman of the Second Session will be C. F. Castle, Chief, Services Div., Off. of Asst. Secy. of Defense for Property and Installations. The Session program will include such topics as "Catastrophe Planning and Large Scale Emergency Fire Extinguishment Problems," by Lloyd Layman, Dir. Fire Office, Tech. Advisory Services, F.C.D.A.; "Extinguishment of Large-scale Fires (Operation Fire Stop)," by R. K. Arnold, Univ. of Calif. and "Fire Prevention and Fire Fighting of Ammonium Nitrate," by Capt. Herbert F. Walsh, COTP, Los Angeles-Long Beach, Coast Guard 11 ND, San Diego, Calif. George Tryon, of the N.E.P.A., will discuss "Airport Crash-Rescue Problems."

Chairman of the Third Session will be Prof. C. S. Grove, Jr., Syracuse Univ. Research Inst., Syracuse, N. Y. The morning Sessions will largely be devoted to aircrash rescue and fire extinguishment problems, and newest developments in fire extinguishers, with prominent speakers handling the topics. There will be a demonstration following the luncheon.

The Fourth Session will be chairmanned by G. B. Wareham, Equip't and Supplies, Off. of Asst. Secy. of Defense for Research and Development. Among the topics of special interest to fire fighters will be "Research on Foams for Fuel Extinguishment," by R. L. Tuve; "High Pressure Foam," by Harry Sheppard, Dir. of Engineering, American-La France Foamite Corp. There will also be a panel discussion on "American and European Research and Development."

The Fifth Session will have as its Chairman, R. Stange, Asst. Mgr. National Board of Fire Underwriters, San Francisco, Calif. Topics will include "Methods of Protecting Tank Farms,"

(*Continued on page* 940)

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Hale Fire Pump Co.

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*President*
Federal Sign & Signal Corporation

JONAS R. SMITH
*Sales Manager*
Eureka Fire Hose Div.
U. S. Rubber Co.

LESTER STEVENSON
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The Seagrave Corp.

HARRY T. ARMINGTON
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Universal Fire Apparatus Corp.

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American-La France-Foamite Corp.

J. O. BINFORD
*Vice-Pres. Charge of Sales*
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G. J. HALPIN
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R. V. VOELKERT
*Secy. & Sales Mgr.*
Elkhart Brass Mfg. Co.

G. W. STOWELL
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A. J. GILLEO
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Elkhart Brass Mfg. Co.

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*General Mgr.*
Elkhart Brass Mfg. Co.

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Globe Manufacturing Co.

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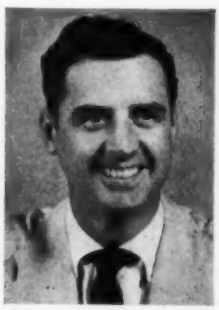

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McCulloch Motors Corp.

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*General Manager*
Super Vacuum Mfg. Co.

WILLIAM COLE
*General Mgr.*
Fabric Fire Hose Co.

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Mack Motor Truck Corp.

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Mack Motor Truck Corp.

BERT NELSON
*Fire Apparatus Div.*
Mack Motor Truck Corp.

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John Bean Div.,
Food Machinery & Chemical Corp.

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Food Machinery & Chemical Corp.

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Hewitt Robins Incorporated

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Mann Edge Tool Co.

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Quaker Rubber Corp.

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*Mgr. Fire Hosp.*
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Quaker Rubber Corp.

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Munic. Fire Hose Sales Div., Quaker Rubber Corp.

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Atlas Safety Equipment Co.

CHARLES C. LENZ
*President*
Atlas Safety Equipment Co., Inc.

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*Mgr., Canvas Div.*
Fulton Bag & Cotton Mills

G. L. SMITH
*Gen Sales Manager*
Republic Rubber Div., Lee Rubber and Tire Corp.

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*President*
Body-Guard Mfg. Co.

FIRE EQUIPMENT MANUFACTURERS AND REPRESENTATIVES

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National Foam System, Inc.

FISHER L. BOYD
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National Foam System, Inc.

DR. JOSEPH M. PERRI
*Chemical Director*
National Foam System, Inc.

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*Vice-President*
Pyrene—C-O-Two

HAROLD J. BURKE
*Manager, Systems Div.*
Pyrene—C-O-Two

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Ansul Chemical Co.

L. C. McKESSON
*Vice-President, Sales*
Ansul Chemical Co.

P. R. LARIMER
*General Sales Manager*
Ansul Chemical Co.

G. B. VERMILYE
*Sales Mgr., Fire Equip. Div.*
Ansul Chemical Co.

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Aluminum Ladder Co.

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F. N. McIntire Brass Works

ARTHUR W. SULLIVAN
*Exec. Representative*
American District Telegraph Co.

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*President*
The F. E. Myers & Bros. Co.

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*Reg. Sales Manager*
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The Fyr-Fyter Co.

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*Vice-Pres. Charge of Sales*
Wooster Brass Div.,
The Fyr-Fyter Co.

J. J. DUNLEAVY
*Vice-Pres. & Gen. Mgr.*
Wooster Brass Div.,
The Fyr-Fyter Co.

E. J. HOUSEKEEPER
*Vice-Pres. Chg. of Prod.*
Wooster Brass Div.
The Fyr-Fyter Co.

T. C. DU BREUIL
*Chief Design Engr.*
Wooster Brass Div.
The Fyr-Fyter Co.

FIRE EQUIPMENT MANUFACTURERS AND REPRESENTATIVES

# WHERE TO BUY
# *Directory of Equipment For Fire Departments*

This special feature is provided for the guidance and convenience of fire officials and others concerned with the purchase of fire equipment. The companies listed comprise those whose products have recently been advertised in FIRE ENGINEERING and are thus now actively serving the fire protection field.

For information on any type of equipment not listed address Readers' Service Dept., FIRE ENGINEERING, 24 W. 40th St., New York 18, N. Y.

**AIR COMPRESSORS (High Pressure)**
CORNELIUS COMPANY, THE

**ALARM SYSTEMS**

**Automatic**
AMERICAN DISTRICT TELEGRAPH CO.
PYRENE—C-O-TWO
DARLEY & CO., W. S.
FIRE-LITE ALARMS, INC.
FYR-LARM CO., INC.
GAMEWELL COMPANY
GRINNELL COMPANY, INC.
HARRINGTON SIGNAL COMPANY
KIDDE & COMPANY, INC., WALTER
NOTIFIER MFG. CO.

**Batteries**
DELCO-REMY DIV., G. M. C. (Automotive)
FIRE-LITE ALARMS, INC.
GAMEWELL COMPANY
HARRINGTON SIGNAL COMPANY

**Boxes**
DARLEY & CO., W. S.
FEDERAL SIGN & SIGNAL CO., INC.
GAMEWELL COMPANY
HARRINGTON SIGNAL COMPANY
NOTIFIER MFG. CO.
SAFER ELECTRONIC FIRE ALARM CO., INC.

**Central Station**
AMERICAN DISTRICT TELEGRAPH CO.
FEDERAL SIGN & SIGNAL CO., INC.
GAMEWELL COMPANY
HARRINGTON SIGNAL COMPANY
KIDDE & COMPANY, INC., WALTER

**Home**
BUFFALO FIRE APPLIANCE CORP.
FIRE-LITE ALARMS, INC.
FYR-FYTER CO., THE
FYR-LARM CO., INC.
KIDDE & COMPANY, INC., WALTER
NOTIFIER MFG. CO.

**Industrial**
AMERICAN DISTRICT TELEGRAPH CO.
PYRENE—C-O-TWO
DARLEY & CO., W. S.
FEDERAL SIGN & SIGNAL CO., INC.
FIRE-LITE ALARMS, INC.
FYR-FYTER CO., THE
FYR-LARM CO., INC.
GAMEWELL COMPANY
GRINNELL COMPANY, INC.
HARRINGTON SIGNAL COMPANY
KIDDE & COMPANY, INC., WALTER
NOTIFIER MFG. CO.
SAFER ELECTRONIC FIRE ALARM, INC.
STERLING SIREN FIRE ALARM CO., INC.

**Institutional**
AMERICAN DISTRICT TELEGRAPH CO.
DARLEY & CO., W. S.
FIRE-LITE ALARMS, INC.
FYR-LARM CO., INC.
GAMEWELL COMPANY
GRINNELL COMPANY, INC.
HARRINGTON SIGNAL COMPANY
KIDDE & COMPANY, INC., WALTER
NOTIFIER MFG. CO.
PYRENE—C-O-TWO
SAFER ELECTRONIC FIRE ALARM, INC.

**Municipal**
DARLEY & CO., W. S.
FEDERAL SIGN & SIGNAL CO., INC.
FYR-LARM CO., INC.
GAMEWELL COMPANY
HARRINGTON SIGNAL COMPANY
NOTIFIER MFG. CO.
SAFER ELECTRONIC FIRE ALARM CO., INC.
STERLING SIREN FIRE ALARM CO., INC.

**Recording Systems**
DICTAPHONE CORPORATION
GAMEWELL COMPANY
HARRINGTON SIGNAL COMPANY
NOTIFIER MFG. CO.
SOUNDSCRIBER CORPORATION

**Sirens, Air Horns & Whistles**
BIERSACH & NIEDERMEYER CO.
DARLEY & CO., W. S.
FEDERAL SIGN & SIGNAL CO., INC.
FYR-LARM CO., INC.
GAMEWELL COMPANY
SIRENO CO., INC., THE
STERLING SIREN FIRE ALARM CO., INC.

**Tape Systems**
GAMEWELL COMPANY
HARRINGTON SIGNAL COMPANY
NOTIFIER MFG. CO.
SOUNDSCRIBER CORPORATION

**APPARATUS WARNING DEVICES**

**Bells**
AMERICAN-LA FRANCE-FOAMITE CORP.
ATTWOOD BRASS WORKS, INC.
DARLEY & CO., W. S.
ELKHART BRASS MFG. CO., INC.
FIRE-LITE ALARMS, INC.
GAMEWELL COMPANY
GRINNELL COMPANY, INC.
HARRINGTON SIGNAL COMPANY

**Lights**
AMERICAN-LA FRANCE-FOAMITE CORP.
ARGUSLITE CO.
BUCKEYE IRON & BRASS WORKS
DARLEY & CO., W. S.
FEDERAL SIGN & SIGNAL CO., INC.
GAMEWELL COMPANY
McDERMOTT CORP., JULIAN A.
PORTABLE LIGHT CO., INC.
SIRENO CO., INC.
TRIPPE MANUFACTURING COMPANY
U-C LITE MANUFACTURING CO.

**Sirens**
AMERICAN-LA FRANCE-FOAMITE CORP.
DARLEY & CO., W. S.
FEDERAL SIGN & SIGNAL CO., INC.
FIRE-LITE ALARMS, INC.
GAMEWELL COMPANY
PORTABLE LIGHT CO., INC.
SIRENO CO., INC.
STERLING SIREN FIRE ALARM CO., INC.

**Whistles**
DARLEY & CO., W. S.
GAMEWELL COMPANY

**AXES & HATCHETS**
AMERICAN-LA FRANCE-FOAMITE CORP.
ATLAS SAFETY EQUIPMENT COMPANY, INC.
DARLEY & CO., W. S.
ELKHART BRASS MFG. CO., INC.
MANN EDGE TOOL COMPANY
PACIFIC MARINE SUPPLY CO.
POWHATAN BRASS & IRON WORKS
RANDOLPH LABORATORIES, INC.
UNIVERSAL FIRE APPARATUS CORP.

**BADGES, INSIGNIA, ETC.**
BLACKINTON CO., INC., V. H.
BRAXMAR CO., INC., THE C. G.
BULLARD CO., E. D. (Decals for Helmets)
CAIRNS AND BRO., INC.
CITY PATTERN SHOP, INC.
DARLEY & CO., W. S.
EVERSON-ROSS CO., INC.
REESE, S. H.
RUSSELL UNIFORM CO.
WENTWORTH-FORMAN CO., INC.
WILLIAMS JEWELRY & MFG. CO.
WOOSTER BRASS DIV. THE FYR-FYTER CO.

**BATTERY CHARGES**
CARPENTER MANUFACTURING CO.
DARLEY & CO., W. S.
LA MARCHE MANUFACTURING CO.
ONAN & SONS INC., D. W.
PIONEER GEN-E-MOTORS CORP.

**BLANKETS, FIRE**
BULLARD COMPANY, E. D.
DANIELS, INC., C. R.
DARLEY & CO., W. S.
FULTON BAG & COTTON MILLS
INDUSTRIAL SAFETY SPECIALTIES CO.
MINE SAFETY APPLIANCES COMPANY

**BOROTHERM**
AMERICAN POTASH & CHEMICAL CORP.

**BROOMS, FIRE FIGHTING**
AMERICAN-LA FRANCE-FOAMITE CORP.
BROOKLYN FIBRE BROOM CO., INC.

**CBM CHLOROBROMOMETHANE**
AMERICAN POTASH & CHEMICAL CORP.

**CIVILIAN DEFENSE SUPPLIES**
TIMES INDUSTRIAL SUPPLY CORP.

**CUTTERS, BAR, CHAIN, CABLE**
AMERICAN-LA FRANCE-FOAMITE CORP.
DARLEY & CO., W. S.
MILWAUKEE ELECTRIC TOOL CO.
PORTER INC., H. K.

**CUTTING & WELDING EQUIPMENT**
AMERICAN-LA FRANCE-FOAMITE CORP.
DARLEY & CO., W. S.
MILWAUKEE ELECTRIC TOOL CO.
WELDERS' SERVICE COMPANY

**DOORS, APPARATUS, ELECTRIC**
OVERHEAD DOOR CORP.

**EJECTORS AND EXHAUSTERS, SMOKE**
AMERICAN-LA FRANCE-FOAMITE CORP.
DARLEY & CO., W. S.
HOMELITE CORPORATION
SUPER VACUUM MANUFACTURING CO.
WOOSTER BRASS DIV., THE FYR-FYTER CO.

**ENGINES**

**(Diesel or Gas)**
DETROIT DIESEL ENGINE DIV., GENERAL MOTORS
FAIRBANKS, MORSE & CO.
INTERNATIONAL HARVESTER COMPANY
ONAN & SONS INC. DIV.
PIONEER GEN-E-MOTOR CORP.
WAUKESHA MOTOR COMPANY

**EXTINGUISHERS**

**$CO_2$**
AMERICAN-LA FRANCE-FOAMITE CORP.
AMERICAN RUBBER MFG. CO., THE
BUFFALO FIRE APPLIANCE CORP.
DARLEY & CO., W. S.
ELKHART BRASS MFG. CO., INC.
FYR-FYTER CO., THE
GENERAL PACIFIC CORP.
GENERAL DETROIT CORP., THE
GENERAL FIRE GUARD CORP., LTD.
KIDDE & COMPANY, INC., WALTER
PACIFIC MARINE SUPPLY CO.
PYRENE—C-O-TWO
RANDOLPH LABORATORIES, INC.

**Chimney Fire**
FOARD & CO., F. C.
FYR-FYTER CO., THE
PACIFIC MARINE SUPPLY CO.
SMITH & CO., D. B.
STANDARD RAILWAY FUSEE CORP., SIGNAL FLARE DIV.

### Dry Chemical
AMERICAN-LA FRANCE-FOAMITE CORP.
AMERICAN RUBBER MFG. CO., THE
ANSUL CHEMICAL COMPANY
BUFFALO FIRE APPLIANCE CORP.
DARLEY & CO., W. S.
ESSENTIAL CHEMICALS CO.
FYR-FYTER CO., THE
GENERAL DETROIT CORP.
GENERAL FIRE GUARD CORP., LTD.
GENERAL PACIFIC CORP.
KIDDE & COMPANY, INC., WALTER
PACIFIC MARINE SUPPLY CO.
PYRENE—C-O-TWO
RANDOLPH LABORATORIES, INC.
SAFETY FIRST PRODUCTS CORP.

### Foam
AMERICAN-LA FRANCE-FOAMITE CORP.
AMERICAN RUBBER MFG. CO., THE
BUFFALO FIRE APPLIANCE CORP.
DARLEY & CO., W. S.
ELKHART BRASS MFG. CO., INC.
FYR-FYTER CO., THE
GENERAL DETROIT CORP.
GENERAL FIRE GUARD CORP., LTD.
GENERAL PACIFIC CORP.
KIDDE & COMPANY, INC.
PACIFIC MARINE SUPPLY CO.
PYRENE—C-O-TWO
RANDOLPH LABORATORIES, INC.

### Soda & Acid
AMERICAN RUBBER MFG. CO., THE
AMERICAN-LA FRANCE-FOAMITE CORP.
BUFFALO FIRE APPLIANCE CORP.
DARLEY & CO., W. S.
ELKHART BRASS MFG. CO., INC.
FYR-FYTER CO., THE
GENERAL DETROIT CORP.
GENERAL FIRE GUARD CORP., LTD.
GENERAL PACIFIC CORP.
KIDDE & COMPANY, INC., WALTER
PACIFIC MARINE SUPPLY CO.
PYRENE—C-O-TWO
RANDOLPH LABORATORIES, INC.

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AMERICAN-LA FRANCE-FOAMITE CORP.
BUFFALO FIRE APPLIANCE CORP.
DARLEY & CO., W. S.
ELKHART BRASS MFG. CO., INC.
FYR-FYTER CO., THE
GENERAL DETROIT CORP.
GENERAL FIRE GUARD CORP., LTD.
GENERAL PACIFIC CORP.
KIDDE & COMPANY, INC., WALTER
PACIFIC MARINE SUPPLY CO.
PYRENE—C-O-TWO
RANDOLPH LABORATORIES, INC.

### Water
AMERICAN-LA FRANCE-FOAMITE CORP.
AMERICAN RUBBER MFG. CO., THE
BUFFALO FIRE APPLIANCE CORP.
DARLEY & CO., W. S.
ELKHART BRASS MFG. CO., INC.
FYR-FYTER CO., THE
GENERAL DETROIT CORP.
GENERAL FIREGUARD CORP., LTD.
GENERAL PACIFIC CORP.
KIDDE & COMPANY, INC., WALTER
PARCO PRODUCTS
PACIFIC MARINE SUPPLY CO.
PYRENE—C-O-TWO
RANDOLPH LABORATORIES, INC.
SMITH AND COMPANY, D. B.

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AMERICAN DISTRICT TELEGRAPH CO.
FIRE-LITE ALARMS INC.
FYR-LARM COMPANY
NOTIFIER MFG. CO.

## FIRE DEPARTMENT SUPPLIES, MISC.
AMERICAN FIRE EQUIPMENT CO.
AMERICAN-LA FRANCE-FOAMITE CORP.
ATLAS SAFETY EQUIPMENT CO., INC.
BOMGARDNER MFG. CO., THE
BUFFALO FIRE APPLIANCE CORP.
CAIRNS AND BRO., INC.
DARLEY & CO., W. S.
DAYTON FIRE EQUIPMENT CO.
DUAL-LITE COMPANY
EASTMAN CO., INC., SAMUEL
ELKHART BRASS MFG. CO., INC.
EXCELSIOR BRASS MFG. CO.
FIRE MASTER CORP.
FYR-FYTER CO., THE
GENERAL DETROIT CORP.
GENERAL PACIFIC CORP.
HOWE FIRE APPARATUS CO.
MAXIM MOTOR CO.
MILWAUKEE ELECTRIC TOOL CO.
OREN ROANOKE CORPORATION
PACIFIC REFLEX SIGNS
POWHATAN BRASS & IRON WORKS
PIRSCH & SONS CO., PETER
SMITH AND COMPANY, D. B.
TIMES INDUSTRIAL SUPPLY CORP.
W. B. MANUFACTURING CO.
WARD LAFRANCE TRUCK CORPORATION
WOOSTER BRASS DIV., THE FYR-FYTER CO.

## FIRE DETECTION SYSTEMS
AMERICAN DISTRICT TELEGRAPH CO.
DARLEY & CO., W. S.
FIRE-LITE ALARMS, INC.
FYR-LARM CO., INC.
GAMEWELL COMPANY
GRINNELL COMPANY, INC.
KIDDE & COMPANY, INC., WALTER
NOTIFIER MFG. CO.
PACIFIC MARINE SUPPLY CO.
PYRENE—C-O-TWO

## FIRE DOORS
BIERSACH & NIEDERMEYER CO.
VON DUPRIN DIV. VONNEGUT HARDWARE CO.

## FIRE ESCAPES (Permanent)
POTTER FIRE ESCAPE CO.

## FIRE ESCAPES (Portable)
ATLAS SAFETY EQUIPMENT CO., INC.
DARLEY & CO., W. S.
MAXIM MOTOR CO.

## FIRE RETARDANT MATERIALS

### Paint, etc.
DARLEY & CO., W. S.
FYR-FYTER CO., THE
QRS NEON CORPORATION, CHEMICAL & PROCESS DIV.

## FIRST AID EQUIPMENT
AMERICAN-LA FRANCE-FOAMITE CORP.
BOMGARDNER MFG. CO., THE
BULLARD COMPANY, E. D.
CHESEBROUGH MANUFACTURING CO.
DARLEY & CO., W. S.
E & J MANUFACTURING CO.
EMERSON CO., J. H.
MEDICAL SUPPLY CO. (Burn Spray Kits)
MINE SAFETY APPLIANCES COMPANY
PAC-KIT COMPANY
STEPHENSON CORPORATION

## FOAM—CHEMICAL—LIQUID
AMERICAN-LA FRANCE-FOAMITE CORP.
DARLEY & CO., W. S.
FYR-FYTER CO., THE
GENERAL DETROIT CORP.
GENERAL PACIFIC CORP.
KIDDE & COMPANY, INC., WALTER
NATIONAL FOAM SYSTEM, INC.
NICEROL LTD. Great Brick-Kiln St., Wolverhampton, England
PACIFIC MARINE SUPPLY CO.
PYRENE—C-O-TWO
ROCKWOOD SPRINKLER COMPANY

## FOAM GENERATORS OR PUMPS
AMERICAN-LA FRANCE-FOAMITE CORP.
DARLEY & CO., W. S.
HALE FIRE PUMP CO.
KIDDE & COMPANY, INC., WALTER
NATIONAL FOAM SYSTEM, INC.
PACIFIC MARINE SUPPLY CO.
PYRENE—C-O-TWO

## FORCIBLE ENTRY TOOLS
AKRON BRASS MFG. CO., INC.
AMERICAN-LA FRANCE-FOAMITE CORP.
ATLAS SAFETY EQUIPMENT COMPANY, INC.
C. D. PIKE & FIRE HOOK MFG. CORP.
DARLEY & CO., W. S.
ELKHART BRASS MFG. CO., INC.
HALLIGAN, H. A.
MANN EDGE TOOL COMPANY
MILWAUKEE ELECTRIC TOOL CO.
PIRSCH & SONS CO.
UNIVERSAL FIRE APPARATUS CORP.
WARD LA FRANCE TRUCK CORPORATION
WOOSTER BRASS DIV., THE FYR-FYTER CO.

## GAS INDICATORS & DETECTORS
KOEHLER MANUFACTURING COMPANY
MINE SAFETY APPLIANCES COMPANY

## GAUGES

### Testing
AMERICAN-LA FRANCE-FOAMITE CORP.
DARLEY & CO., W. S.
ELKHART BRASS MFG. CO., INC.
FYR-FYTER CO., THE
WOOSTER BRASS DIV., THE FYR-FYTER CO.

### Pressure
AMERICAN-LA FRANCE-FOAMITE CORP.
DARLEY & CO., W. S.
UNIVERSAL FIRE APPARATUS CORP.

### Compound
AMERICAN-LA FRANCE-FOAMITE CORP.
DARLEY & CO., W. S.
UNIVERSAL FIRE APPARATUS CORP.

### Piezometers
DARLEY & CO., W. S.
ELKHART BRASS MFG. CO., INC.
WOOSTER BRASS DIV., THE FYR-FYTER CO.

## GENERATORS, AUTOMOTIVE
AMERICAN BOSCH DIV., AMERICAN BOSCH ARMA CORP.
AMERICAN-LA FRANCE-FOAMITE CORP.
DELCO-REMY DIV., G. M. C.
LEECE NEVILLE CO., THE

## GOGGLES
CAIRNS & BRO., INC.
DARLEY & CO., W. S.
MINE SAFETY APPLIANCES COMPANY

## HARDWARE FOR APPARATUS
ALUMINUN LADDER COMPANY
ATTWOOD BRASS WORKS, INC.
MAXIM MOTOR CO.
POWHATAN BRASS & IRON WORKS
UNIVERSAL FIRE APPARATUS CORP.

## HOOK & PIKE POLES
AKRON BRASS MFG. CO., INC.
ALUMINUM LADDER COMPANY
AMERICAN-LA FRANCE-FOAMITE CORP.
ATLAS SAFETY EQUIPMENT CO., INC.
ATTWOOD BRASS WORKS, INC.
BUFFALO FIRE APPLIANCE CORP.
C. D. PIKE & FIRE HOOK MFG. CO.
DUO-SAFETY LADDER CORP.
OREN ROANOKE CORP.
PACIFIC MARINE SUPPLY CO.
PIRSCH & SONS CO., PETER
UNIVERSAL FIRE APPARATUS CORP.
WOOSTER BRASS DIV., THE FYR-FYTER CO.

## HOSE

### Cotton, R. L.
AMERICAN-LA FRANCE-FOAMITE CORP.
AMERICAN RUBBER MFG. CO., THE
BI-LATERAL FIRE HOSE CO.
BLAZE GUARD MFG. CO.
BOSTON WOVENHOSE & RUBBER CO.
BUFFALO FIRE APPLIANCE CORP.
DARLEY & CO., W. S.
EUREKA FIRE HOSE DIV., U. S. RUBBER CO.
FABRIC FIRE HOSE COMPANY
FYR-FYTER CO., THE
GENERAL DETROIT CORP.
GENERAL FIREGUARD CORP., LTD.
GENERAL PACIFIC CORP.
GOODRICH COMPANY, B. F.
HAMILTON RUBBER MFG. CORP.
HEWITT-ROBINS INCORPORATED
OREN ROANOKE CORPORATION
PACIFIC MARINE SUPPLY CO.
QUAKER RUBBER CORPORATION
REPUBLIC RUBBER DIVISION, LEE RUBBER & TIRE CORPORATION
UNIVERSAL FIRE HOSE MFG. CO.

### Forestry
AMERICAN RUBBER MFG. CO., THE
BLAZE GUARD MFG. CO.
BOSTON WOVEN HOSE & RUBBER CO.
BUFFALO FIRE APPLIANCE CORP.
DARLEY & CO., W. S.
EUREKA FIRE HOSE DIV., U. S. RUBBER CO.
FABRIC FIRE HOSE COMPANY
GENERAL DETROIT CORP.
GENERAL FIREGUARD CORP., LTD.
GENERAL PACIFIC CORP.
GOODRICH COMPANY, B. F.
HAMILTON RUBBER MFG. CORP.
HEWITT-ROBINS INCORPORATED
PACIFIC MARINE SUPPLY CO.
QUAKER RUBBER CORPORATION
REPUBLIC RUBBER DIVISION, LEE RUBBER & TIRE CORPORATION
UNIVERSAL FIRE HOSE MFG. CO.

### High Pressure
AMERICAN-LA FRANCE-FOAMITE CORP.
AMERICAN RUBBER MFG. CO., THE
BEAN DIV., JOHN, FOOD MACHINERY & CHEMICAL CORP.
BI-LATERAL FIRE HOSE CO.
BLAZE GUARD MFG. CO.
BOSTON WOVEN HOSE & RUBBER CO.
BUFFALO FIRE APPLIANCE CORP.
DARLEY & CO., W. S.
EUREKA FIRE HOSE DIV., U. S. RUBBER CO.
FABRIC FIRE HOSE COMPANY
FYR-FYTER CO., THE
GENERAL DETROIT CORP.
GENERAL FIREGUARD CORP., THE, LTD.
GENERAL PACIFIC CORP.
GOODRICH COMPANY, B. F.
HAMILTON RUBBER MFG. CORP.
HEWITT-ROBINS INCORPORATED
PACIFIC MARINE SUPPLY CO.
QUAKER RUBBER CORPORATION
REPUBLIC RUBBER DIVISION, LEE RUBBER & TIRE CORPORATION
UNIVERSAL FIRE HOSE MFG. CO.

### Chemical
AMERICAN-LA FRANCE-FOAMITE CORP.
AMERICAN RUBBER MFG. CO., THE
BI-LATERAL FIRE HOSE CO.
BLAZE GUARD MFG. CO.
BOSTON WOVEN HOSE & RUBBER CO.
BUFFALO FIRE APPLIANCE CORP.
DARLEY & CO., W. S.
ESSENTIAL CHEMICALS CO.
EUREKA FIRE HOSE DIV., U. S. RUBBER CO.
FABRIC FIREHOSE COMPANY
FYR-FYTER CO., THE
GENERAL DETROIT CORP.
GENERAL FIREGUARD CORP., LTD.
GENERAL PACIFIC CORP.
GOODRICH COMPANY, B. F.
HAMILTON RUBBER MFG. CORP.
HEWITT-ROBINS INCORPORATED
PACIFIC MARINE SUPPLY CO.
QUAKER RUBBER CORPORATION
REPUBLIC RUBBER DIVISION, LEE RUBBER & TIRE CORPORATION
UNIVERSAL FIRE HOSE MFG. CO.

### Suction
AMERICAN-LA FRANCE-FOAMITE CORP.
AMERICAN RUBBER MFG. CO., THE
BI-LATERAL FIRE HOSE CO.
BLAZE GUARD MFG. CO.
BOSTON WOVEN HOSE & RUBBER CO.
BUFFALO FIRE APPLIANCE CORP.
DARLEY & CO., W. S.
EUREKA FIRE HOSE DIV., U. S. RUBBER CO.
FABRIC FIRE HOSE COMPANY
FYR-FYTER CO., THE
GENERAL DETROIT CORP.
GENERAL FIREGUARD CORP., LTD.
GENERAL PACIFIC CORP.
GOODRICH COMPANY, B. F.
HAMILTON RUBBER MFG. CORP.
HEWITT-ROBINS INCORPORATED
PACIFIC MARINE SUPPLY CO.
QUAKER RUBBER CORPORATION
REPUBLIC RUBBER DIVISION, LEE RUBBER & TIRE CORPORATION
UNIVERSAL FIRE HOSE MFG. CO.

## HOSE APPLIANCES

### Expansion Rings, Brass
AKRON BRASS MFG. CO., INC.
AMERICAN RUBBER MFG. CO., THE
ATTWOOD BRASS WORKS, INC.
BOSTON WOVEN HOSE & RUBBER CO.
BUCKEYE IRON & BRASS WORKS
BUFFALO FIRE APPLIANCE CORP.
ELKHART BRASS MFG. CO., INC.
EUREKA FIREHOSE DIV., U. S. RUBBER CO.
EXCELSIOR BRASS MFG. CO.
HEWITT-ROBINS, INC.
PACIFIC MARINE SUPPLY CO.
POWHATAN BRASS & IRON WORKS
QUAKER RUBBER CORP.
REPUBLIC RUBBER DIV., LEE RUBBER & TIRE CORP.
UNIVERSAL FIRE APPARATUS CORP.
WOOSTER BRASS DIV., THE FYR-FYTER CO.

### Holders
AKRON BRASS MFG. CO., INC.
ATTWOOD BRASS WORKS, INC.
BUFFALO FIRE APPLIANCE CORP.
DARLEY & CO., W. S.
EASTMAN CO., INC., SAMUEL
ELKHART BRASS MFG. CO., INC.
EXCELSIOR BRASS MFG. CO.
HOWE FIRE APPARATUS CO.
POWHATAN BRASS & IRON WORKS
WOOSTER BRASS DIV., THE FYR-FYTER CO.

### Increasers
AKRON BRASS MFG. CO., INC.
AMERICAN-LA FRANCE-FOAMITE CORP.
BOSTON WOVEN HOSE & RUBBER CO.
BUFFALO FIRE APPLIANCE CORP.
DARLEY & CO., W. S.
EASTMAN CO., INC., SAMUEL
ELKHART BRASS MFG. CO., INC.
EXCELSIOR BRASS MFG. CO.
HOWE FIRE APPARATUS CO.
McINTIRE BRASS WORKS, F. N.
PACIFIC MARINE SUPPLY CO.
POWHATAN BRASS & IRON WORKS
WOOSTER BRASS DIV., THE FYR-FYTER CO.

### Reducers
AKRON BRASS MFG. CO., INC.
AMERICAN-LA FRANCE-FOAMITE CORP.
BOSTON WOVEN HOSE & RUBBER CO.
BUFFALO FIRE APPLIANCE CORP.
DARLEY & CO., W. S.
EASTMAN CO., INC., SAMUEL
ELKHART BRASS MFG. CO., INC.
EXCELSIOR BRASS MFG. CO.
FYR-FYTER CO., THE
GENERAL DETROIT CORP.
GENERAL FIREGUARD CORP., LTD.
GENERAL PACIFIC CORP.
HOWE FIRE APPARATUS CO.
McINTIRE BRASS WORKS, F. N.
PACIFIC MARINE SUPPLY CO.
POWHATAN BRASS & IRON WORKS
WOOSTER BRASS DIV., THE FYR-FYTER CO.

### Hydrant Gates
AKRON BRASS MFG. CO., INC.
BUFFALO FIRE APPLIANCE CORP.
DARLEY & CO., W. S.
EASTMAN CO., INC., SAMUEL
ELKHART BRASS MFG. CO., INC.
EXCELSIOR BRASS MFG. CO.
McINTIRE BRASS WORKS, F. N.
POWHATAN BRASS & IRON WORKS
WOOSTER BRASS DIV., THE FYR-FYTER CO.

### Siamese and Y-fittings
AKRON BRASS MFG. CO., INC.
AMERICAN-LA FRANCE-FOAMITE CORP.
BUFFALO FIRE APPLIANCE CORP.
DARLEY & CO., W. S.
EASTMAN CO., INC., SAMUEL
ELKHART BRASS MFG. CO., INC.
EXCELSIOR BRASS MFG. CO.
FYR-FYTER CO., THE
HOWE FIRE APPARATUS CO.
McINTIRE BRASS WORKS, F. N.
PACIFIC MARINE SUPPLY CO.
POWHATAN BRASS & IRON WORKS
WOOSTER BRASS DIV., THE FYR-FYTER CO.

### Siphons
AKRON BRASS MFG. CO., INC.
PACIFIC MARINE SUPPLY CO.
WOOSTER BRASS DIV., THE FYR-FYTER CO.

## HOSE BRIDGES
DARLEY & CO., W. S.
MAXIM MOTOR CO.
QUAKER RUBBER CORPORATION
WOOSTER BRASS DIV., THE FYR-FYTER CO.

## HOSE CABINET UNITS
AMERICAN-LA FRANCE-FOAMITE CORP.
AMERICAN RUBBER MFG. CO., THE
BUFFALO FIRE APPLIANCE CORP.
DARLEY & CO., W. S.
ELKHART BRASS MFG. CO., INC.
GENERAL DETROIT CORP.
GENERAL FIREGUARD CORP., LTD.
GENERAL PACIFIC CORP.
PACIFIC MARINE SUPPLY CO.
RANDOLPH LABORATORIES, INC.
WOOSTER BRASS DIV., THE FYR-FYTER CO.

## HOSE REELS, RACKS, CARTS
AMERICAN RUBBER MFG. CO., THE
ARDMORE PRODUCTS
BAR-WAY MANUFACTURING CO.
BUFFALO FIRE APPLIANCE CORP.
DARLEY & CO., W. S.
ELKHART BRASS MFG. CO., INC.
GENERAL DETROIT CORP.
GENERAL FIREGUARD CORP., LTD.
GENERAL PACIFIC CORP., LTD.
H. & H. FIRE APPARATUS, INC.
HANNAY & SON, INC., CLIFFORD B.
MAXIM MOTOR CO.
MINNESOTA FIRE EQUIPMENT CO.
OREN ROANOKE CORPORATION
PACIFIC MARINE SUPPLY CO.
POWHATAN BRASS & IRON WORKS
RANDOLPH LABORATORIES, INC.
WOOSTER BRASS DIV., THE FYR-FYTER CO.

## HOSE CLAMPS
AKRON BRASS MFG. CO., INC.
AMERICAN-LA FRANCE-FOAMITE CORP.
ATTWOOD BRASS WORKS, INC.
BOSTON WOVEN HOSE & RUBBER CO.
BUFFALO FIRE APPLIANCE CORP.
DARLEY & CO., W. S.
ELKHART BRASS MFG. CO., INC.
KELLAM MFG. CO.
PACIFIC MARINE SUPPLY CO.
PIRSCH & SONS CO., PETER
POWHATAN BRASS & IRON WORKS
SMITH & CO., D. B.
WOOSTER BRASS DIV., THE FYR-FYTER CO.

## HOSE CLEANER
ESSENTIAL CHEMICALS CO.
BI-LATERAL FIRE HOSE CO.

## HOSE COUPLINGS, ADAPTERS WRENCHES
AKRON BRASS MFG. CO., INC.
AMERICAN-LA FRANCE-FOAMITE CORP.
ATTWOOD BRASS WORKS, INC.
BOSTON WOVEN HOSE & RUBBER CO.
BUFFALO FIRE APPLIANCE CORP.
DARLEY & CO., W. S.
EASTMAN CO., INC., SAMUEL
ELKHART BRASS MFG. CO., INC.
EXCELSIOR BRASS MFG. CO.
FYR-FYTER CO., THE
HEWITT-ROBINS INCORPORATED
HOWE FIRE APPARATUS CO.
PACIFIC MARINE SUPPLY CO.
POWHATAN BRASS & IRON WORKS
QUAKER RUBBER CORP.
RANDOLPH LABORATORIES, INC.
REPUBLIC RUBBER DIVISION, LEE RUBBER & TIRE CORPORATION
WOOSTER BRASS DIV., THE FYR-FYTER CO.

## HOSE DRYERS
AMERICAN-LA FRANCE-FOAMITE CORP.
CIRCUL-AIR CORPORATION
DARLEY & CO., W. S.
FYR-FYTER CO., THE

## HOSE EXPANDERS
AKRON BRASS MFG. CO., INC.
BUFFALO FIRE APPLIANCE CORP.
DARLEY & CO., W. S.
DAYTON FIRE EQUIPMENT CO.
ELKHART BRASS MFG. CO., INC.
FYR-FYTER CO., THE
PACIFIC MARINE SUPPLY CO.
POWHATAN BRASS & IRON WORKS
WOOSTER BRASS DIV., THE FYR-FYTER CO.

## HOSE JACKETS
AKRON BRASS MFG. CO., INC.
AMERICAN-LA FRANCE-FOAMITE CORP.
AMERICAN RUBBER MFG. CO., THE
BOSTON WOVEN HOSE & RUBBER CO.
DARLEY & CO., W. S.
ELKHART BRASS MFG. CO., INC.
FYR-FYTER CO., THE
GOODRICH CO., B. F., THE
REPUBLIC RUBBER DIV. LEE TIRE & RUBBER CORP.
WOOSTER BRASS DIV., THE FYR-FYTER CO.

## HOSE STORAGE RACKS
W-B MANUFACTURING CO.

## HOSE WASHING MACHINE
KESSLER SALES CORP.
TARRANT MFG. CO.

## HYDRANT WRENCHES
AKRON BRASS MFG. CO., INC.
AMERICAN-LA FRANCE-FOAMITE CORP.
AMERICAN RUBBER MFG. CO., THE
BUFFALO FIRE APPLIANCE CORP.
ELKHART BRASS MFG. CO., INC.
FYR-FYTER CO., THE
MAXIM MOTOR CO.
POWHATAN BRASS & IRON WORKS
WOOSTER BRASS DIV., THE FYR-FYTER CO.

## HYDRANTS
DARLEY & CO., W. S.
MUELLER CO.
WATEROUS COMPANY

## JACKS
AMERICAN-LA FRANCE-FOAMITE CORP.
BLACKHAWK MFG. CO.
PORTER INCORPORATED, H. K.

## LADDERS

### Metal
ALUMINUM LADDER CO.
AMERICAN-LA FRANCE-FOAMITE CORP.
DARLEY & CO., W. S.
DUO-SAFETY LADDER CORP.
MAXIM MOTOR CO.
MEMCO AERIAL LADDER CO.
PIRSCH & SONS CO., PETER
SEAGRAVE CORPORATION

### Rope
ATLAS SAFETY EQUIPMENT CO., INC.

### Wood
AMERICAN-LA FRANCE-FOAMITE CORP.
DARLEY & CO., W. S.
DUO-SAFETY LADDER CORP.
MAXIM MOTOR CO.
PIRSCH & SONS CO., PETER
SEAGRAVE CORPORATION

## LIFE BELTS
AMERICAN-LA FRANCE-FOAMITE CORP.
ATLAS SAFETY EQUIPMENT COMPANY, INC.
BULLARD COMPANY, E. D.
CAIRNS AND BRO., INC.
DARLEY & CO., W. S.
MEMCO AERIAL LADDER CO.
WOOSTER BRASS DIV., THE FYR-FYTER CO.

## LIFE GUNS
AMERICAN-LA FRANCE-FOAMITE CORP.
DARLEY & CO., W. S.
PACIFIC MARINE SUPPLY CO.

## LIGHTS

### Hand Lamps
AMERICAN-LA FRANCE-FOAMITE CORP.
ARGUSLITE CO.
CARPENTER MANUFACTURING CO.
DARLEY & CO., W. S.
DUAL-LITE COMPANY
KOEHLER MANUFACTURING CO.
McDERMOTT CORP., JULIAN A.
MINE SAFETY APPLIANCES COMPANY
NATALE MACHINE & TOOL CO.
PACIFIC MARINE SUPPLY CO.
PORTABLE LIGHT CO., INC.
SIRENO CO., INC., THE
U-C LITE MANUFACTURING CO.

### Flares
McDERMOTT CORP., JULIAN A.
PACIFIC MARINE SUPPLY CO.
STANDARD RAILWAY FUSEE CORP., SIGNAL FLARE DIV.
U-C LITE MNUFACTURING CO.

### Floodlights
AMERICAN-LA FRANCE-FOAMITE CORP.
ARGUSLITE CO.
CARPENTER MANUFACTURING CO.
DARLEY & CO., W. S.
HOMELITE CORPORATION
McDERMOTT CORP., JULIAN A.
NATALE MACHINE & TOOL CO.
PACIFIC MARINE SUPPLY CO.
PORTABLE LIGHT CO., INC.
SIRENO CO., INC., THE
U-C LITE MANUFACTURING CO.

### Searchlights
AMERICAN-LA FRANCE-FOAMITE CORP.
ARGUSLITE CO.
CARPENTER MANUFACTURING CO.
DARLEY & CO., W. S.
KOEHLER MANUFACTURING CO.
McDERMOTT CORP., JULIAN A.
NATALIE MACHINE & TOOL CO.
PACIFIC MARINE SUPPLY CO.
PORTABLE LIGHT CO., INC.
SIRENO CO., INC., THE
U-C LITE MANUFACTURING CO.

## LIGHTING PLANTS
### (Portable; stationary)
AMERICAN-LA FRANCE-FOAMITE CORP.
CARPENTER MANUFACTURING CO.
DARLEY & CO., W. S.
FAIRBANKS-MORSE & CO.
HOMELITE CORPORATION
KATOLIGHT CORP.
KOHLER CO.
ONAN & SONS, INC., D. W.
PACIFIC MARINE SUPPLY CO.
PIONEER GEN-E-MOTOR CORP.
UNITED STATES MOTORS CORP.

## LOUD SPEAKERS

### PA Systems
GENERAL ELECTRIC COMPANY
MOTOROLA INC.

### Electric Megaphones
AUDIO EQUIPMENT CO., INC.
DARLEY & CO., W. S.
STEWART-WARNER ELECT. DIV., STEWART-WARNER CORP.

## MOTOR APPARATUS

### Ambulances
INTERNATIONAL HARVESTER COMPANY
SHARPSVILLE STEEL FABRICATORS, INC.

### Crash Trucks
AMERICAN-LA FRANCE-FOAMITE CORP.
APPROVED FIRE EQUIPMENT CO.
BEAN DIVISION, JOHN; FOOD MACHINERY & CHEMICAL CORP.
CARDOX CORP.
DARLEY & CO., W. S.
FIRE FIGHTER TRUCK CO.
FIRE MASTER CORP.
FOUR WHEEL DRIVE AUTO CO.
GENERAL FIRE TRUCK CO.
GENERAL PACIFIC CORP.
H. & H. FIRE APPARATUS, INC.
HOWE FIRE APPARATUS CO.
INTERNATIONAL HARVESTER COMPANY
KIDDE & COMPANY, INC., WALTER
MACK MANUFACTURING CORPORATION
MAXIM MOTOR CO.
MINNESOTA FIRE EQUIPMENT COMPANY
OREN ROANOKE CORPORATION
PIRSCH & SONS CO., PETER
ROBINSON, A. F.
SEAGRAVE CORPORATION
SHARPSVILLE STEEL FABRICATORS, INC.
THIELE & SONS, INC., W. J.
UNIVERSAL FIRE APPARATUS CORP.
WARD LA FRANCE TRUCK CORPORATION
YOUNG FIRE EQUIPMENT CORP.

### Ladder Trucks, Aerial
AMERICAN-LA FRANCE-FOAMITE CORP.
APPROVED FIRE EQUIPMENT CO.
DARLEY & CO., W. S.
FOUR WHEEL DRIVE AUTO CO.
INTERNATIONAL HARVESTER COMPANY
MACK MANUFACTURING CORPORTION
MAXIM MOTOR CO.
OREN-ROANOKE CORP.
PIRSCH & SONS CO., PETER
SHARPSVILLE STEEL FABRICATORS, INC.
SEAGRAVE CORPORATION
UNIVERSAL FIRE APPARATUS CORP.
WARD LA FRANCE TRUCK CORP.

### Ladder Trucks, Service

AMERICAN-LA FRANCE-FOAMITE CORP.
APPROVED FIRE EQUIPMENT CO.
DARLEY & CO., W. S.
FIRE FIGHTER TRUCK CO.
FIRE MASTER CORP.
FOUR WHEEL DRIVE AUTO CO.
GENERAL FIRE TRUCK CO.
GENERAL PACIFIC CORP.
H. & H. FIRE APPARATUS, INC.
HOWE FIRE APPARATUS CO.
INTERNATIONAL HARVESTER COMPANY
MACK MANUFACTURING CORPORATION
MAXIM MOTOR CO.
OREN ROANOKE CORPORATION
PIRSCH & SONS CO., PETER
ROBINSON, A. F.
ROWLAND COMPANY, THE
SEAGRAVE CORPORATION
SHARPSVILLE STEEL FABRICATORS, INC.
THIELE & SONS, INC., W. J.
UNIVERSAL FIRE APPARATUS CORP.
WARD LA FRANCE TRUCK CORPORATION
ZABEK FIRE APPARATUS, INC.

## PUMPERS

AMERICAN FIRE APPARATUS CO.
AMERICAN-LA FRANCE-FOAMITE CORP.
APPROVED FIRE EQUIPMENT CO.
BEAN DIVISION, JOHN; FOOD MACHINERY & CHEMICAL CORP.
BLITZ BUGGY COMPANY
BOARDMAN CO.
DARLEY & CO., W .S.
FIRE FIGHTER TRUCK CO.
FIRE MASTER CORPORATION
FOUR WHEEL DRIVE AUTO CO.
GENERAL FIRE TRUCK CO.
GENERAL PACIFIC CORP.
H. & H. FIRE APPARATUS, INC.
HOWE FIRE APPARATUS CO.
INTERNATIONAL HARVESTER CO.
MACK MANUFACTURING CORPORATION
MAXIM MOTOR CO.
MINNESOTA FIRE EQUIPMENT COMPANY
OREN ROANOKE CORPORATION
PIRSCH & SONS CO., PETER
ROBINSON, A. F.
ROWLAND COMPANY, THE
SEAGRAVE CORPORATION
SHARPSVILLE STEEL FABRICATORS, INC.
THIELE & SONS, INC., W. J.
UNIVERSAL FIRE APPARATUS CORP.
WARD LA FRANCE TRUCK CORPORATION
YOUNG FIRE EQUIPMENT CORP.
ZABEK FIRE APPARATUS, INC.

### Pumpers, High Pressure Fog

AMERICAN FIRE APPARATUS CO.
AMERICAN-LA FRANCE-FOAMITE CORP.
APPROVED FIRE EQUIPMENT CO.
ASSOCIATED FIRE EQUIPMENT CO.
BEAN DIVISION, JOHN; FOOD MACHINERY & CHEMICAL CORP.
BLITZ BUGGY COMPANY
DARLEY & CO., W. S.
FOUR WHEEL DRIVE AUTO CO.
GENERAL FIRE TRUCK CO.
GENERAL PACIFIC CORP.
H. & H. FIRE APPARATUS, INC.
HOWE FIRE APPARATUS CO.
INTERNATIONAL HARVESTER COMPANY
MACK MANUFACTURING CORPORATION
MAXIM MOTOR CO.
MINNESOTA FIRE EQUIPMENT COMPANY
OREN ROANOKE CORPORATION
PACIFIC MARINE SUPPLY CO.
PIRSCH & SONS CO., PETER
SEAGRAVE CORPORATION, THE
SHARPSVILLE STEEL FABRICATORS, INC.
ROBINSON, A. F.
THIELE & SONS, INC., W. J.
UNIVERSAL FIRE APPARATUS CORP.
WARD LA FRANCE TRUCK CORPORATION
YOUNG FIRE EQUIPMENT CORP.

### Rescue and Squad Trucks

APPROVED FIRE EQUIPMENT CO.
AMERICAN-LA FRANCE-FOAMITE CORP.
BEAN DIVISION, JOHN, FOOD MACHINERY & CHEMICAL CORP.
BOARDMAN CO.
DARLEY & CO., W. S.
FOUR WHEEL DRIVE AUTO CO.
GENERAL FIRE TRUCK CO.
GENERAL PACIFIC CORP.
H. & H. FIRE APPARATUS, INC.
INTERNATIONAL HARVESTER COMPANY
MAXIM MOTOR CO.
OREN ROANOKE CORPORATION
PIRSCH & SONS CO., PETER
ROBINSON, A. F.
SEAGRAVE CORPORATION
SHARPSVILLE STEEL FABRICATORS, INC.
TIMES INDUSTRIAL SUPPLY CORP.
THIELE & SONS, INC., W. J.
UNIVERSAL FIRE APPARATUS CORP.
WARD LA FRANCE TRUCK CORPORATION
YOUNG FIRE EQUIPMENT CORP.
ZABEK FIRE APPARATUS, INC.

### Tank Trucks

APPROVED FIRE EQUIPMENT CO.
BOARDMAN CO.
DARLEY & CO., W. S.
FOUR WHEEL DRIVE AUTO CO.
GENERAL FIRE TRUCK CO.
GENERAL PACIFIC CORP.
H. & H. FIRE APPARATUS, INC.
HOWE FIRE APPARATUS CO.
INTERNATIONAL HARVESTER COMPANY
MAXIM MOTOR CO.
MINNESOTA FIRE EQUIPMENT COMPANY
OREN ROANOKE CORPORATION
PIRSCH & SONS CO., PETER
ROBINSON, A. F.
SEAGRAVE CORPORATION
SHARPSVILLE STEEL FABRICATORS, INC.
THIELE & SONS, INC., W. J.
UNIVERSAL FIRE APPARATUS CORP.
WARD LA FRANCE TRUCK CORPORATION
YOUNG FIRE EQUIPMENT CORP.
ZABEK FIRE APPARATUS, INC.

### Utility and Repair Trucks

FOUR WHEEL DRIVE AUTO CO.
GENERAL FIRE TRUCK CO.
H. & H. FIRE APPARATUS, INC.
INTERNATIONAL HARVESTER COMPANY
MAXIM MOTOR CO.
OREN ROANOKE CORPORATION
SHARPSVILLE STEEL FABRICATORS, INC.
THIELE & SONS, INC., W. J.
UNIVERSAL FIRE APPARATUS CORP.
WARD LA FRANCE TRUCK CORPORATION

## NETS, LIFE AND TRAINING

ATLAS SAFETY EQUIPMENT COMPANY, INC.
DARLEY & CO., W. S.

## NOZZLES

### Cellar Pipe

AKRON BRASS MFG. CO., INC.
AMERICAN-LA FRANCE-FOAMITE CORP.
BUFFALO FIRE APPLIANCE CORP.
DARLEY & CO., W. S.
ELKHART BRASS MFG. CO., INC.
FYR-FYTER CO., THE
McINTIRE BRASS WORKS, F. N.
PACIFIC MARINE SUPPLY CO.
POWHATAN BRASS & IRON WORKS
ROCKWOOD SPRINKLER COMPANY
WOOSTER BRASS DIV., THE FYR-FYTER CO.

### Deck Guns

AKRON BRASS MFG. CO., INC.
AMERICAN-LA FRANCE-FOAMITE CORP.
BUFFALO FIRE APPLIANCE CORP.
DARLEY & CO., W. S.
EASTMAN CO., INC., SAMUEL
ELKHART BRASS MFG. CO., INC.
FYR-FYTER CO., THE
McINTIRE BRASS WORKS, F. N.
WOOSTER BRASS DIV., THE FYR-FYTER CO.

### Deluge Sets

AKRON BRASS MFG. CO., INC.
AMERICAN-LA FRANCE-FOAMITE CORP.
BUFFALO FIRE APPLIANCE CORP.
DARLEY & CO., W. S.
EASTMAN CO., INC., SAMUEL
ELKHART BRASS MFG. CO., INC.
FYR-FYTER CO., THE
McINTIRE BRASS WORKS, F. N.
WOOSTER BRASS DIV., THE FYR-FYTER CO.

### Distributor

AKRON BRASS MFG. CO., INC.
AMERICAN-LA FRANCE-FOAMITE CORP.
DARLEY & CO., W. S.
ELKHART BRASS MFG. CO., INC.
FYR-FYTER CO., THE
GOLD CREST SAFETY EQUIPMENT CORP.
WOOSTER BRASS DIV., THE FYR-FYTER CO.

### Foam

AKRON BRASS MFG. CO., INC.
AMERICAN-LA FRANCE-FOAMITE CORP.
ATTWOOD BRASS WORKS, INC.
CARDOX CORP.
DARLEY & CO., W. S.
FYR-FYTER CO., THE
KIDDE & COMPANY, INC., WALTER
NATIONAL FOAM SYSTEM, INC.
PACIFIC MARINE SUPPLY CO.
POWHATAN BRASS & IRON WORKS
PYRENE—C-O-TWO
ROCKWOOD SPRINKLER COMPANY

### Fog

AKRON BRASS MFG. CO.
AMERICAN-LA FRANCE-FOAMITE CORP.
AMERICAN RUBBER MFG. CO., THE
ATTWOOD BRASS WORKS, INC.
BEAN DIVISION, JOHN; FOOD MACHINERY & CHEMICAL CORP.
BUFFALO FIRE APPLIANCE CORP.
BUCKEYE IRON & BRASS WORKS
CARDOX CORP.
DARLEY & CO., W. S.
ELKHART BRASS MFG. CO., INC.
FYR-FYTER CO., THE
FOG NOZZLE INTERNATIONAL, DIV. OF AKRON BRASS
GRINNELL COMPANY
MYERS & BRO. CO., F. E.
McINTIRE BRASS WORKS, F. N.
PACIFIC MARINE SUPPLY CO.
POWHATAN BRASS & IRON WORKS
ROCKWOOD SPRINKLER COMPANY
WOOSTER BRASS DIV., THE FYR-FYTER CO.

### Fog-Foam

AKRON BRASS MFG. CO., INC.
AMERICAN RUBBER MFG. CO., INC., THE
AMERICAN-LAFRANCE-FOAMITE CORP.
ATTWOOD BRASS WORKS, INC.
CARDOX CORP.
DARLEY & CO., W. S.
ELKHART BRASS MFG. CO.
FYR-FYTER CO., THE
PACIFIC MARINE SUPPLY CO.
ROCKWOOD SPRINKLER COMPANY
WOOSTER BRASS DIV., THE FYR-FYTER CO.

### Heavy Stream

AKRON BRASS MFG. CO., INC.
AMERICAN-LAFRANCE-FOAMITE CORP.
BOSTON WOVEN HOSE & RUBBER CO.
CARDOX CORP.
DARLEY & CO., W. S.
EASTMAN CO., SAMUEL
ELKHART DETROIT CORP.
FYR-FYTER CO., THE
GENERAL DETROIT CORP.
GENERAL FIREGUARD CORP., LTD.
GENERAL PACIFIC CORP.
McINTIRE BRASS WORKS, F. N.
PACIFIC MARINE SUPPLY CO.
WOOSTER BRASS DIV., THE FYR-FYTER CO.

### Pipes, Ladder

AKRON BRASS MFG. CO., INC.
AMERICAN-LAFRANCE-FOAMITE CORP.
BUFFALO FIRE APPLIANCE CORP.
DARLEY & CO., W. S.
EASTMAN CO., INC., SAMUEL
ELKHART BRASS MFG. CO., INC.
FYR-FYTER CO., THE
McINTIRE BRASS WORKS, F .N.
POWHATAN BRASS & IRON WORKS
WOOSTER BRASS DIV., THE FYRIFYTER CO.

### Pipes, Play

AKRON BRASS MFG. CO., INC.
AMERICAN-LAFRANCE-FOAMITE CORP.
AMERICN RUBBER MFG. CO., THE
BOSTON WOVEN HOSE & RUBBER CO.
BUFFALO FIRE APPLIANCE CORP.
BUCKEYE IRON & BRASS WORKS
DARLEY & CO., W. S.
EASTMAN CO., INC., SAMUEL
ELKHART BRASS MFG. CO., INC.
EXCELSIOR BRASS MFG. CO.
FYR-FYTER CO., THE
GRINNELL COMPANY, INC.
McINTIRE BRASS WORKS, F. N.
PACIFIC MARINE SUPPLY CO.
NATIONAL FOAM SYSTEM, INC.
PACIFIC MARINE SUPPLY C0.
POWHATAN BRASS & IRON WORKS
ROCKWOOD SPRINKLER COMPANY
WOOSTER BRASS DIV., THE FYR-FYTER CO.

### Shut-Off

AKRON BRASS MFG. CO., INC.
AMERICAN-LAFRANCE-FOAMITE CORP.
AMERICAN RUBBER MFG. CO., THE
BUCKEYE IRON & BRASS WORKS
BUFFALO FIRE APPLIANCE CORP.
DARLEY & CO., W. S.
EASTMAN CO., SAMUEL
ELKHART BRASS MFG. CO., INC
EXCELSIOR BRASS MFG. CO.
FYR-FYTER CO., THE
McINTIRE BRASS & IRON WORKS
POWHATAN BRASS & IRON WORKS
ROCKWOOD SPRINKLER COMPANY
WOOSTER BRASS DIV., THE FYR-FYTER CO.

## OIL SPILL DISPERSANT

ESSENTIAL CHEMICALS CO.

## OUTBOARD MOTORS

JOHNSON MOTORS
PACIFIC MARINE SUPPLY CO.

## OXYGEN REVIVING APPARATUS

### Aspirators

E & J MANUFACTURING COMPANY
EMERSON CO., J. H.
MINE SAFETY APPLIANCES COMPANY
STEPHENSON CORPORATION

### Inhalators

AMERICAN-LAFRANCE-FOAMITE CORP.
CYCLE-FLO COMPANY
DARLEY & CO., W. S.
E & J MANUFACTURING COMPANY
EMERSON CO., J. H.
MINE SAFETY APPLIANCES COMPANY
SCOTT AVIATION CORP.
STEPHENSON CORPORATION

### Respirators

EMERSON CO., J. H.
MINE SAFETY APPLIANCES COMPANY

### Resuscitators

AMERICAN-LAFRANCE-FOAMITE CORP.
DARLEY & CO., W. S.
E & J MANUFACTURING COMPANY
EMERSON CO., J. H.
MINE SAFETY APPLIANCES COMPANY
STEPHENSON CORPORATION

## PANIC HARDWARE

VON DUPRIN DIR., VONNEGUT HARDWARE CO.

## PETROLEUM DISPERSANT

ESSENTIAL CHEMICALS CO.

## POLYSTER FIBRE FOR FIRE HOSE

E. I. DUPONT DE NEMOURS & CO. (INC.), TEXTILE FIBRES DEPT.

## POWER PLANTS, ELECTRIC

### Portable

AMERICAN-LAFRANCE-FOAMITE CORP.
DARLEY & CO., W. S.
FAIRBANKS-MORSE & CO.
HOMELITE CORPORATION
KATOLIGHT CORP.
KOHLER CO.
MAXIM MOTOR CO.
ONAN & SONS, INC., D. W.
PACIFIC MARINE SUPPLY CO.
PIONEER GEN-E-MOTOR CORP.
UNITED STATES MOTORS CORP.
WINCHARGER CORP.

### Stationary

AMERICAN-LAFRANCE-FOAMITE CORP.
DARLEY & CO., W. S.
FAIRBANKS-MORSE & CO.
KATOLIGHT CORP.
KOHLER CO.
MAXIM MOTOR CO.
ONAN & SONS, INC., D. W.
UNITED STATES MOTORS CORP.
WINCHARGER CORPORATION

## POWER UNITS, FIRE BOAT

INTERNATIONAL HARVESTER CO.
DETROIT DIESEL ENGINE DIV., GENERAL MOTORS
KERMATH MFG. CO.

## PRESSURE COMPUTER

A & W SPECIALTY CO.

## PROPORTIONERS

AMERICAN-LAFRANCE-FOAMITE CORP.
AQUADYNE CORPORATION
DARLEY & CO., W. S.
McFARLAND MANUFACTURING CORPORATION, UNOX CO. DIV.
NATIONAL FOAM SYSTEM, INC.
PYRENE MANUFACTURING COMPANY
ROCKWOOD SPRINKLER COMPANY

## PUMPS

### Fire Apparatus

AMERICAN FIRE EQUIPMENT CO.
AMERICAN-LAFRANCE-FOAMITE CORP.
AMERICAN-MARSH PUMPS, INC.
DARLEY & CO., W. S.
FAIRBANKS-MORSE & CO.
FOUR WHEEL DRIVE AUTO CO.
GORMAN-RUPP CO.
HALE FIRE PUMP CO.
HOWE FIRE APPARATUS CO.
McCULLOCH MOTORS CORP.
OBERDORFER FOUNDRIES, INC.
UNIVERSAL FIRE APPARATUS CORP.
WATEROUS COMPANY

### Handpumps

DARLEY & CO., W. S.
MYERS & BRO. CO., F. E.
PACIFIC MARINE SUPPLY CO.
PARCO PRODUCTS
SMITH AND COMPANY, D. B.

### High Pressure

AMERICAN-LAFRANCE-FOAMITE CORP.
AMERICAN-MARSH PUMPS, INC.
ASSOCIATED FIRE EQUIPMENT CO.
DARLEY & CO., W. S.
FAIRBANKS, MORSE & CO.
GORMAN-RUPP CO.
HALE FIRE PUMP COMPANY
MARINE PRODUCTS COMPANY
McCULLOCH MOTORS CORP.
MYERS & BRO. CO., F. E.
PACIFIC MARINE SUPPLY CO.
WATEROUS COMPANY

### Hydrant Dewatering Pumps

AMERICAN-MARSH PUMPS, INC.
DARLEY & CO., W. S.
FAIRBANKS, MORSE & CO.
GORMAN-RUPP CO.
MARINE PRODUCTS COMPANY
WATEROUS COMPANY
WOOSTER BRASS DIV., THE FYR-FYTER CO.

### Portable

AMERICAN-MARSH PUMPS, INC.
AMERICAN-LAFRANCE-FOAMITE CORP.
DARLEY & CO., W. S.
FAIRBANKS, MORSE & CO.
GORMAN-RUPP CO.
HALE FIRE PUMP CO.
HOMELITE CORPORATION
MARINE PRODUCTS COMPANY
MAXIM MOTOR CO.
McCULLOCH MOTORS CORP.
PACIFIC MARINE SUPPLY CO.
PARCO PRODUCTS
SMITH AND COMPANY, D. B.
SOLAR AIRCRAFT CO.
UNIVERSAL FIRE APPARATUS CORP.

### Suction Boosters

AMERICAN-MARSH PUMPS, INC.
DARLEY & CO., W. S.
FAIRBANKS, MORSE & CO.
GORMAN-RUPP CO.
McCULLOCH MOTORS CORP.
OBERDORFER FOUNDRIES, INC.

### Trailer Mounted

DARLEY & CO., W. S.
GORMAN-RUPP CO.
HALE FIRE PUMP CO.
MAXIM MOTOR CO.
OREN ROANOKE CORPORATION
PACIFIC MARINE SUPPLY CO.
WATEROUS COMPANY

## RADIO—TWO WAY, THREE WAY

BENDIX RADIO DIVISION, BENDIX AVIATION CORPORATION
COMMUNICATIONS COMPANY, INC.
DU MONT LABORATORIES, INC.
GENERAL ELECTRIC COMPANY
KAAR ENGINEERING CO.
MOTOROLA, INC.
RADIO CORPORATION OF AMERICA

## RADIO—WALKIE TALKIE

BENDIX RADIO DIVISION, BENDIX AVIATION CORPORATION
GENERAL ELECTRIC COMPANY
KAAR ENGINEERING CO.
MOTOROLA, INC.
RADIO CORPORATION OF AMERICA

## RADIO RECEIVERS

BENDIX RADIO DIVISION, BENDIX AVIATION CORPORATION
COMMUNICATIONS COMPANY, INC.
DUMONT LABORATORIES, INC.
GENERAL ELECTRIC COMPANY
MILES REPRODUCER CO. (Recorders)
MOTOROLA, INC.
RADIO APPARATUS CORP.

## RECORDERS

DICTAPHONE CORPORATION
GAMEWELL COMPANY
MILES REPRODUCER CO.
SOUNDSCRIBER CORP.

## RESPIRATORY PROTECTIVE EQUIPMENT

### Masks

ACME PROTECTION EQUIPMENT CO.
BULLARD COMPANY, E. D.
CYCLE-FLO COMPANY
DARLEY & CO., W. S.
MINE SAFETY APPLIANCES COMPANY

### Oxygen Breathing Equipment

AMERICAN-LAFRANCE-FOAMITE CORP.
CYCLE-FLO COMPANY
MINE SAFETY APPLIANCES COMPANY
STEPHENSON CORPORATION

### Air Breathing Equipment

ACME PROTECTION EQUIPMENT CO.
AMERICAN-LAFRANCE-FOAMITE CORP.
CORNELIUS CO., THE (Air Compressors)
MINE SAFETY APPLIANCES COMPANY
SCOTT AVIATION CORP.

## SAFETY EQUIPMENT FOR FLAMMABLE LIQUIDS

FAR-EX CORP. (Aluminized Heat Reflective)
GENERAL PACIFIC CORP.
PROTECTOSEAL CO.

## SALVAGE COVERS

DANIELS, INC., C. R.
DARLEY & CO., W. S.
FAR-EX CORP. (Aluminized Heat Reflective)
FULTON BAG & COTTON MILLS

## SAWS, CHAIN

HOMELITE CORPORATION
McCULLOCH MOTORS CORP.
MILWAUKEE ELECTRIC TOOL CORP.

## SIGNS & EMBLEMS, APPARATUS

ATTWOOD BRASS WORKS, INC.
GOLD CREST SAFETY EQUIPMENT CORP.
LANE, E. B., DISTRIBUTOR
PACIFIC REFLEX SIGNS
WENTWORTH-FORMAN CO., INC.
WOOSTER BRASS DIV., THE FYR-FYTER CO.

## SLIDING CHUTES, FIRE STATION

POTTER FIRE ESCAPE CO.

## SLIDING POLES, FIRE STATION

McINTIRE BRASS WORKS, F. N.

## SMOKE GENERATORS FOR DRILLS

NEWCO PRODUCTS, INC.
STANDARD RAILWAY FUSE CORP., SIGNAL FLARE DIV.
SUPERIOR SIGNAL CO.

## SMOKE & ODOR REMOVERS (Chemical)

DARLEY & CO., W. S.
FOARD & CO., F. C.
FYR-FYTER CO., THE

## SMOKE DETECTORS

AMERICAN DISTRICT TELEGRAPH CO.
KIDDE & CO., INC., WALTER
PACIFIC MARINE SUPPLY CO.

## SPACE HEATERS, Portable

AMERICAN AIR FILTER CO.

## SPRINKLER SUPERVISORY SERVICE

AMERICAN DISTRICT TELEGRAPH CO.
NOTIFIER MFG. CO.

## SPRINKLERS & SYSTEMS

AKRON BRASS MFG. CO., INC.
FOG NOZZLE INTERNATIONAL, DIV. OF AKRON BRASS
GRINNELL COMPANY, INC.
ROCKWOOD SPRINKLER COMPANY

## STRAINERS, MAIN & SUCTION

AKRON BRASS MFG. CO., INC.

## STRETCHERS

BOMGARDNER MFG. CO., THE
BULLARD CO., E. D.
DARLEY & CO., W. S.
MINE SAFETY APPLIANCES COMPANY
WASHINGTON MORTUARY SUPPLY CO.

## SPLINTS

BULLARD CO., E. D.
MINE SAFETY APPLIANCES COMPANY

## THREAD CUTTING EQUIPMENT

AKRON BRASS MFG. CO., INC.
DARLEY & CO., W. S.
ELKHART BRASS MFG. CO., INC.
PACIFIC MARINE SUPPLY CO.
WOOSTER BRASS DIV., THE FYR-FYTER CO.

## TROPHIES & PLAQUES

BLACKINTON & CO., INC., V. H.
CITY PATTERN SHOPS, INC.

## THAWING EQUIPMENT, Hydrant

AMERICAN-LAFRANCE-FOAMITE CORP.
DARLEY & CO., W. S.

## VALVES

### Hose

AKRON BRASS MFG. CO., INC.
AMERICAN RUBBER MFG. CO., THE
BUFFALO FIRE APPLIANCE CORP.
DARLEY & CO., W. S.
EASTMAN CO., SAMUEL
ELKHART BRASS MFG. CO., INC.
EXCELSIOR BRASS MFG. CO.
FYR-FYTER CO., THE
GRINNELL COMPANY, INC.
HALE FIRE PUMP CO.
McINTIRE BRASS WORKS, F. N.
PACIFIC MARINE SUPPLY CO.
POWHATAN BRASS & IRON WORKS
WATEROUS COMPANY
WOOSTER BRASS DIV., THE FYR-FYTER CO.

### Hydrants—Gate

AKRON BRASS MFG. CO., INC.
BUCKEYE IRON & BRASS WORKS
BUFFALO FIRE APPLIANCE CORP.
DARLEY & CO., W. S.
EASTMAN CO., INC., SAMUEL
ELKHART BRASS MFG. CO., INC.
EXCELSIOR BRASS MFG. CO.
FYR-FYTER CO., THE
McINTIRE BRASS WORKS, F. N.
MUELLER CO.
POWHATAN BRASS & IRON WORKS
WATEROUS COMPANY
WOOSTER BRASS DIV., THE FYR-FYTER CO.

### Relief

AKRON BRASS MFG. CO., INC.
DARLEY & CO., W. S.
HALE FIRE PUMP CO.
PACIFIC MARINE SUPPLY CO.
WATEROUS COMPANY
WOOSTER BRASS DIV., THE FYR-FYTER CO.

## WATER TANKS, Portable, Collapsible

FOL-DA-TANK CO.
HARODIKES, INCORPORATED
PACIFIC MARINE SUPPLY CO.

## WEARING APPAREL

### Asbestos Protective Clothing

AMERICAN-LAFRANCE-FOAMITE CORP.
DARLEY & CO., W. S.
FAR-EX CORP. (Aluminum Heat Reflective)
INDUSTRIAL SAFETY SPECIALTIES CO.
MINE SAFETY APPLIANCES COMPANY

### Boots

AMERICAN-LAFRANCE-FOAMITE CORP.
BEACON FALLS RUBBER FOOTWEAR
BODY GUARD MFG. CO.
DARLEY & CO., W. S.
EUREKA FIRE HOSE DIV., U. S. RUBBER CO.
FAR-EX CORP. (Heat Reflective)
JANESVILLE APPAREL CO.
MINE SAFETY APPLIANCES COMPANY
SPERRY TOP-SIDERS
UNITED STATES RUBBER CO.

### Cloth for Uniforms

METCALF BROS.

### Clothing, Rubber & Canvas

AMERICAN-LAFRANCE-FOAMITE CORP.
BODY GUARD MFG. CO.
DARLEY & CO., W. S.
EUREKA FIRE HOSE DIV., U. S. RUBBER CO.
GLOBE MANUFACTURING CO.
GOODRICH COMPANY, B. F.
JANESVILLE APPAREL CO.
MIDWESTERN MFG. COMPANY
MORNING PRIDE MFG. CO.

### Hats and Caps—Uniform

BRUNSSEN CO., INC., GEORGE
CAIRNS AND BRO., INC.
DARLEY & CO., W. S.
EUREKA FIRE HOSE DIV., U. S. RUBBER CO.
REESE, S. H.
RUSSELL UNIFORM CO.
WENTWORTH-FORMAN CO., INC.

### Helmets

AMERICAN-LAFRANCE-FOAMITE CORP.
BULLARD CO., E. D. (Fiberglas)
CAIRNS AND BRO., INC.
DARLEY & CO., W. S.
FAR-EX CORP. (Aluminized Heat Reflective)
MINE SAFETY APPLIANCES COMPANY

### Shirts, Uniform

CAIRNS AND BRO., INC.
DARLEY & CO., W. S.
RUSSELL UNIFORM CO.

### Suits

RUSSELL UNIFORM CO.

### Suits, Quick Hitch

CAIRNS AND BRO., INC.
DARLEY & CO., W. S.
GLOBE MANUFACTURING CO.
JANESVILLE APPAREL CO.
MORNING PRIDE MFG. CO.

### Woolen Socks & Mitts

FOX RIVER VALLEY KNITTING CO.

## WETTING AGENTS

AMERICAN-LAFRANCE-FOAMITE CORP.
AQUADYNE CORPORATION
DARLEY & CO., W. S.
FIREWATER CO.
GENERAL ANILINE & FILM CORP.
GENERAL DETROIT CORP.
GENERAL PACIFIC CORP.
NATIONAL FOAM SYSTEM, INC.
ROCKWOOD SPRINKLER COMPANY
UNOX CO. DIV., McFARLAND MFG. CORP.

# DIRECTORY OF MANUFACTURERS

## Listed in WHERE TO BUY SECTION

*For Advertisers in this issue see Advertising Index on p. 1002*

Acme Protection Equipment Co., 1201 Kalamazoo St., South Haven, Mich.
Akron Brass Mfg. Co., Wooster, Ohio
Aluminum Ladder Co., Worthington, Pa.
American Air Filter Co., Herman Nelson Div., 217 Central Ave., Louisville 8, Ky.
American Bosch Div., American Bosch Arma Corp., 3664 Main St., Springfield 7, Mass.
American District Telegraph Co., 155 Sixth Ave., New York 13, N. Y.
American Fire Apparatus Co., P. O. Box 1024, Main St. Rd., Battle Creek, Mich.
American Fire Equipment Co., 717 Boylston St., Boston 16, Mass.
American-LaFrance-Foamite Corp., 100 LaFrance St., Elmira, N. Y.
American Marsh Pumps, Inc., 60 Capital Ave., N.E., Battle Creek, Mich.
American Potash & Chemical Corp., 3930 West 6th St., Los Angeles 54, Calif.
American Rubber Mfg. Co., 1145 Park Ave., Oakland, Cal.
Ansul Chemical Co., Marinette, Wis.
Approved Fire Equipment Co., 101 Long Beach Rd., Oceanside, L. I., N. Y.
Aquadyne Corp., 441 Lexington Ave., New York 17, N. Y.
Arguslite Co., Blue Ridge Summit, Pa.
Associated Fire Equipment Co., 475 Huntington Dr., San Marino, Calif.
Atlas Safety Equipment Co., 27 Warren St., New York 7, N. Y.
Attwood Brass Works, 303 Douglas Ave., Grand Rapids, Mich.
Auburn Machine and Tool Co., 30 Aurelius Ave., Auburn, N. Y.
Audio Equipment Co., Inc., 885 Middleneck Rd., Great Neck, L. I., N. Y.
A & W Specialty Co., 3717 Midland Ave., Syracuse, N. Y.

Bar-Way Mfg. Co., Stamford, Conn.
Beacon Falls Rubber Footwear, Div., U. S. Rubber Co., Beacon Falls, Conn.
Bean Div., John, Food Machinery and Chemical Corp., 1305 S. Cedar St., Lansing 4, Mich.
Bendix Radio Div., Bendix Aviation Corp., Baltimore 4, Md.
Beto Fog Nozzle, Inc., 309 Wells St., Greenfield Mass.
Biersach & Miedermeyer Co., 1931 N. Hubbard St., Milwaukee 12, Wis.
Bi-Lateral Fire Hose Co., 20 N. Wacker Dr., Chicago 6, Ill.
Blackhawk Mfg. Co., 5325 West Rogers, Milwaukee 46, Wis.
Blackinton & Co., Inc., V. H., Attleboro Falls, Mass.
Blaze Guard Mfg. Co., North Bergen, N. J.
Blitz Buggy Co., Main St., Old Forge, N. Y.
Boardman Co., P. O. Box 1152, Oklahoma City, Okla.
Body-Guard Mfg. Co., 222 S. Fourth St., St. Joseph, Mo.
Bomgardner Mfg. Co., The 1364 Hird Ave., Cleveland 7, Ohio
Boston Woven Hose & Rubber Co., P. O. Box 1071, Boston 3, Mass.
Braxmar Co., C. G., 216 E. 45th St., New York, N. Y.
Brooklyn Fibre Broom Co., Inc., 47 Dinsmore Pl., Brooklyn 8, N. Y.
Brunsson Company, Inc., George, 104-106 Bleecker St., New York 12, N. Y.
Buffalo Fire Appliance Corp., 221 Crane, Dayton 1, Ohio
Bullard Company, E. D., 275 Eighth St., San Francisco 3, Cal.

Cairns and Brother, Inc., 854 Bloomfield Ave., Allwood, Clifton, N. J.
Carpenter Mfg. Co., Boston 45, Somerville, Mass.
C. D. Pike & Fire Hook Mfg. Corp., 307 Orange St., New Haven 10, Conn.
Chesebrough Mfg. Co., Cons'd. Professional Products Div., 17 State St., New York 4, N. Y.
Circul-Air Corp., 575 E. Milwaukee Ave., Detroit 21, Mich.
City Pattern Shop, Inc., Box 6, Eastwood Station, Syracuse 6, N. Y.
Communications Company Inc., Box 6250, Coral Gables, Fla.
Cornelius Company, The, 550—39th Ave., N.E., Minneapolis 21, Minn.
Cycle-Flo Co., 986 Bridgeport Ave., Milford, Conn.

Daniels, Inc., C. R., Daniels, Md.
Darley & Co., W. S., 2810 Washington Blvd., Chicago 12, Ill.
Dayton Fire Equipment Co., 1242 W. Second St., Dayton 7, Ohio
Delco-Remy Div., G.M.C., 2401 Columbus Ave., Anderson, Ind.
Detroit Diesel Engine Div., General Motors Corp., 13400 W. Outer Dr., Detroit, Mich.
Dictaphone Corp., 420 Lexington Ave., New York 17, N. Y.
Dual-Lite Co., 193 Front St., Bridgeport, Conn.
Dumont Laboratories, Inc., Allen B., 1500 Main St., Clifton, N. J.
Du Pont de Nemours & Co., Inc., E. I., Textile Fibers Dept., Wilmington 98, Del.

E & J Mfg. Co., 100 E. Graham St., Burbank, Cal.
Eastman Co., Inc., Samuel, Carpenter St., Concord, N. H.
Elkhart Brass Mfg. Co., Inc., 1302 W. Beardsley Ave., Elkhart, Ind.
Emerson Co., J. H., 22 Cottage Park Ave., Cambridge 40, Mass.
Essential Chemicals Co., 2209 N. 32nd St., Milwaukee 8, Wis.
Eureka Fire Hose Div., U. S. Rubber Co., 193 Hudson St., New York 13, N. Y.
Everson-Ross Co., Inc., 88 Chambers St., New York 7, N. Y.
Excelsior Brass Co., 3452 N. Knox Ave., Chicago 41, Ill.

Fabric Fire Hose Co., Sandy Hook, Conn.
Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago 5, Ill.
Far-Ex Corporation, 75 West St., New York 6, N. Y.
Federal Sign & Signal Co., Inc., 6700 S. State St., Chicago 18, Ill.
Fire-Lite Alarms, Inc., 190 Fulton Terrace, New Haven 2, Conn.
Fire Fighter Truck Co., 3148 Fifth Ave., Rock Island, Ill.
Fire Master Corp., 36100 Harper St., Mt. Clemens, Mich.
The Firewater Co., One First St., Los Altos, Cal.
Foard & Co., F. C., Bridgeport, Conn.
Fog Nozzle International, Wooster, Ohio
Fold-Da-Tank Co., Box 361, Rock Island, Ill.
Fox River Valley Knitting Co., Appleton, Wis.
Four Wheel Drive Auto Co., Clintonville, Wis.
Fulton Bag & Cotton Mills, P. O. Box 1720, Atlanta 1, Ga.
Fyr-Fyter Co., The, 221 Crane St., Dayton 1, Ohio
Fyr-Larm Co., Inc., 382 Springfield Ave., Summit, N. J.

Gamewell Co., Newton Upper Falls 64, Mass.
General Aniline & Film Corp., 435 Hudson St., New York, N. Y.
General Detroit Corp., 2272 E. Jefferson Ave., Detroit 7, Mich.
General Electric Co., Bldg. 1, Electronics Park, Syracuse 1, N. Y.
General Fire Truck Co., 25831 Little Rock Ave., St. Clair Shores, Mich.
General Fireguard Corp., Ltd., 978 St. Luke Rd., Windsor, Ontario, Canada
General Pacific Corp., 1501 E. Washington Blvd., Los Angeles 21, Cal.
Globe Manufacturing Co., Pittsfield, N. H.
Gold Crest Safety Equipment Corp., P. O. Box 155, Dunellen, N. J.
Goodrich Company, B. F., 500 S. Main St., Akron, Ohio
Gorman-Rupp Co., 305 S. Bowman St., Mansfield, Ohio
Grinnell Co., Inc., 260 W. Exchange St., Providence 1, R. I.

H & H Fire Apparatus, Inc., 725 Tonnele Ave., Jersey City 7, N. J.
Hale Fire Pump Co., Conshohocken, Pa.
Halligan Tool Co., 1505 Metropolitan Ave., New York 62, N. Y.
Hamilton Rubber Mfg. Corp., Drawer 381, Trenton 3, N. J.
Hannay & Son, Inc., Clifford B., Westerlo, N. Y.
Harodikes, Inc., North Dighton, Mass.
Harrington Signal Co., 118 17th St., Moline, Ill.
Hewitt-Robins, Inc., Hewitt Rubber Div., 240 Kensington Ave., Buffalo 3, N. Y.
Homelite Corp., Riverdale Ave., Port Chester, N. Y.
Howe Fire Apparatus Co., Anderson, Ind.

International Harvester Co., 180 N. Michigan Ave., Chicago 1, Ill.
Industrial Safety Specialties Co., Eighth and Chestnut Sts., Perkasie, Pa.

Janesville Apparel Co., 316 N. Franklin St., Janesville, Wis.
Johnson Motors, Waukegan, Ill.

Kaar Engineering Co., 2815 Middlefield Rd., Palo Alto, Cal.
Katolight Corp., Mankato, Minn.
Kellam Mfg. Co., P. O Box 729, Atlanta 1, Ga.
Kermath Mfg. Co., 5885 Commonwealth Ave., Detroit 8, Mich.
Kessler Sales Corp., 1161½ Front St., Fremont, Ohio
Kiddo & Company, Inc., Walter, 1033 Main St., Belleville 9, N. J.
Koehler Mfg. Co., 383 Lincoln St., Marlboro, Mass.
Kohler Co., Kohler, Wis.

La Marche Mfg. Co., Wakefield 8, R. I.
Lane, E. B., 32 Greenwood Ave., Toledo 5, Ohio
Lecro-Neville Co., 5109 Hamilton Ave., Cleveland, Ohio

McCulloch Motors Corp., 6101 W. Century Blvd., Los Angeles 45, Cal.
McDermott Corp., Julian A., 4022 National St., Corona, N. Y.
McFarland Mfg. Corp., Unox Co. Div., 1630 Roberts St., Houston 3, Tex.
McIntire Brass Works, F. N., 377 Putnam Ave., Cambridge 39, Mass.
Mack Manufacturing Corp., 601 So. Tenth St., Allentown, Pa.
Mann Edge Tool Co., Lewistown, Pa.
Marine Products Co., 515 Lycaste, Detroit 14, Mich.
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Natale Machine and Tool Co., 339 State Highway No. 17, Carlstadt, N. J.
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Newco Products, Inc., 30 East 40th St., New York, N. Y.
Nicorol, Ltd., Great Brick-Kiln St., Wolverhampton, England
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Oberdorfer Foundries, Inc., Syracuse 1, N. Y.
Onan and Sons, Inc., D. W., University Ave. & 25th St., S. E., Minneapolis 14, Minn.
Oren Roanoke Corp., 1201-09 West Salem Ave., Roanoke 16, Va.
Overhead Door Corp., Hartford City, Ind.

Pacific Marine Supply Co., 1223 Western Ave., Seattle 1, Wash.
Pacific Reflex Signs, Box 323, McMinnville, Ore.
Pac-Kit Company, P. O. Box 1306, Greenwich, Conn.
Pioneer Gen-E-Motor Corp., 5841 W. Dickens Ave., Chicago 39, Ill.
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Portable Light Co., Inc., 216 William St., New York 38, N. Y.
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Powhatan Brass & Iron Works, Ranson, W. Va.
Pyrene—C-O-Two, Newark 1, N. Y.

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S-T Hydrant Wrench Co., P. O. Box 921, Holyoke, Mass.
Standard Railway Fusee Corp., Signal Flare Div., P. O. Box 30, Needham Heights, Mass.
Stephenson Corp., P. O. Box 382, Red Bank, N. J.
Sterling Siren Fire Alarm Co., Inc., 8 Bartlett St., Rochester 8, N. Y.
Superior Signal Co., 8 Colfax St., South River, N. J.
Super Vacuum Manufacturing Co., 319 E. 17th Ave., Denver 3, Colo.

Tarrant Mfg. Co., Saratoga Springs, N. Y.
Thiele & Sons, Inc., W. J., 170 Pine St., Johnstown, Pa.
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Trippe Manufacturing Co., 218 N. Jefferson St., Chicago 6, Ill.

U-C Lite Mfg. Co., 1041 West Hubbard St., Chicago 22, Ill.
U. S. Motors Corp., 1420 Nebraska St., Oshkosh, Wis.
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W-B Manufacturing Co., 137 No. Waco St., Wichita, Kans.
Welders' Service Co., 229 Blvd. of the Allies, Pittsburgh 22, Pa.
Wentworth-Forman Co., Inc., 21 Edinboro St., Boston 11, Mass.
Williams Jewelry & Mfg. Co., 19 So. Wabash Ave., Chicago 3, Ill.
Wincharger Corp., Sioux City, Iowa
Wooster Brass Div., The Fyr-Fyter Co., 1415 E. Bowman St., Wooster, Ohio

Young Fire Engineering Corp., 1548 William St., Buffalo 6, N. Y.
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*Du Pont's polyester fiber

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**TESTED AND CERTIFIED BY UNITED STATES TESTING CO.**

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The United States Testing Co., one of America's oldest impartial testing laboratories, tests all Metcalf P & F Stock-Dyed Blue Serge (#386)... a continuous program of quality control.

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Tropical Weights serges, 10-20 oz., shadiquot 19 and 28 oz.

*The METCALF Gold Seal on the back of fabric is your protection.*

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# FALSE ALARMS

### Desperation

The tired business man arrived home to find that the cook had left that morning without notice . . . his daughter had eloped . . . junior had smashed the car . . . the market had been depressed all day, causing him great financial loss . . . and to climax the evil day he found a farewell note from his wife. He knew that a shot would end it all . . . so he opened a bottle and took one.

---

A sign in front of a shoe repair shop pictured several styles of rubber heels and a beautiful girl saying: "I'm in love with America's Number 1 Heel."

Underneath in small feminine handwriting, someone had added: "Too bad, sister! I married him."

---

A home owner, wearing his oldest clothes, was out cutting the lawn when a woman in a brand new car stopped and shouted:

"What do you get for doing yard work?"

The owner looked back at his house and then at the woman.

"The lady of the house lets me live with her," he said.

---

The hand that lifts the cup that cheers should not be used to shift gears.

---

Mose: "Come here quick, Liza, the baby's got something in his diaphragm."

Liza: "Laws sakes! If'n dat don't beat all—and I jess done put it on 'im."

---

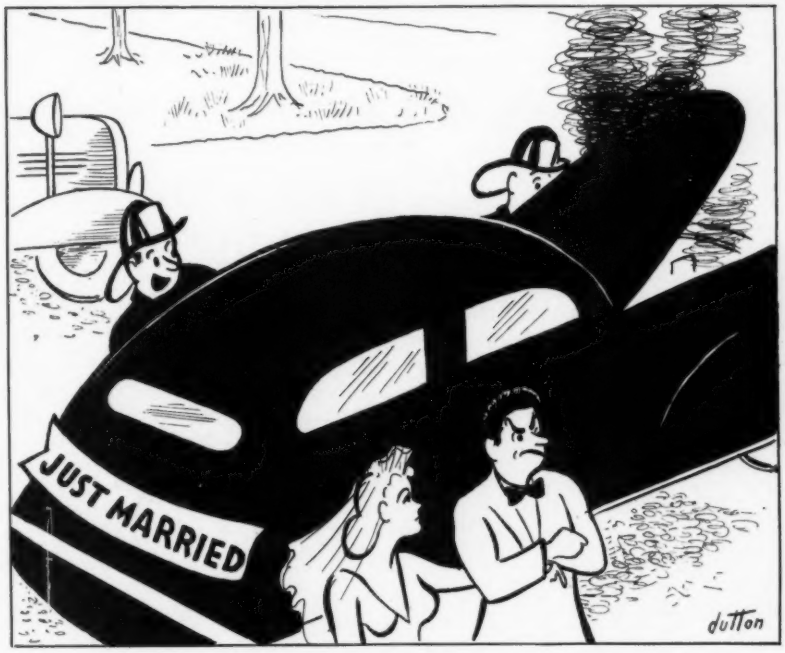
Mixed company is what you are in when you think of a story you can't tell them.

---

An optimist is a guy who thinks his wife has given up cigarettes when he starts finding cigar butts around the house.

---

Very tactless, indeed, was the editor of a small newspaper who printed the following item in his paper: Miss Hanna Smith, a Batesville belle of twenty summers, is visiting her twin brother, age thirty-two, in Jonesville.




"And I bet you were trying to sneak away quietly."

### Red Reasoning

A Soviet professor was lecturing on insects at the university of a satellite country, bent on indoctrinating the youth in Marxian thinking.

"On my right hand," he said to his students, "I have a flea. I now order him to jump over to my left hand. As you see, the flea obeys me.

"Now," he continued, "I remove the legs of the flea and order it to jump. You note that it does not jump. Therefore, gentlemen, we have scientific proof that a flea whose legs are removed becomes deaf."

---

Old Lady: "You say you've been in the force eight years? Why haven't you some service stripes on your sleeve?"

Fireman: "I don't wear them, lady. They chafe my nose."

---

A man with a little black bag knocked on the front door of a large, dilapidated house.

"Come in, come in," greeted the father of thirteen children, "and I sure hope you're the piano tuner."

---

"Don't be afraid of the dog," the lady said to the postman. "She's a female and she likes you."

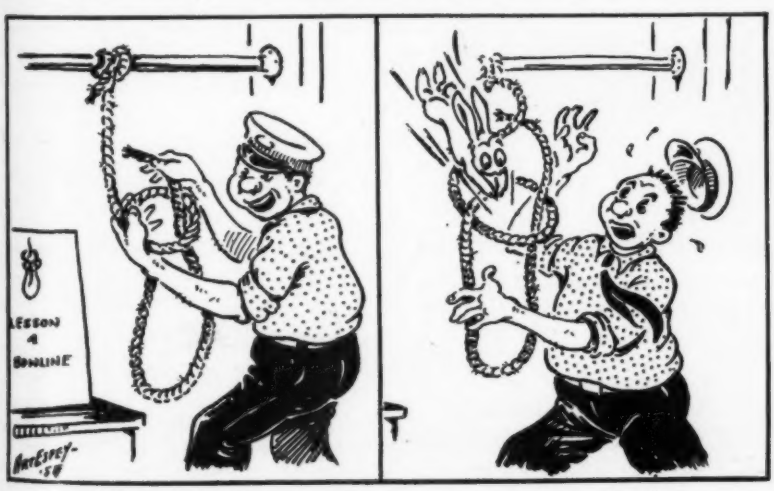
"My dear woman," responded the man with the sack on his shoulder, "the mere fact that she's a female does not assure me that she has affection for me. I'm a mailman, not a male dog."

---

An old engineer pulled his favorite engine up to the water tank and briefed the new fireman. The fireman got up on the tender and brought the spout down all right, but somehow his foot caught in the chain and he stepped right into the tank.

As he floundered around in the water, the engineer watched him with a jaundiced eye.

"Just fill the tank with water, Sonny," he drawled, "no need to stamp the stuff down."




"Out the hole—round the tree—and . . . . . !!!!"

# Boston's Choice of E&J

CONFIRMS AGAIN TODAY THE ENTHUSIASM FOR **E & J RESUSCITATORS** EXPRESSED MORE THAN A DECADE AGO IN THIS...

**1941 AD FROM FIRE ENGINEERING**

**"The best piece of equipment purchased by this department in many years".....**

*is the*

**BOSTON**

*report on the*

**E & J RESUSCITATOR INHALATOR and ASPIRATOR**

Commissioner William Arthur Reilly ▶ Boston Fire Dept.

◀ Chief Samuel J. Pope Boston Fire Dept.

Boston's new 125-ft. aerial ladder, which will also carry an E & J Resuscitator as part of its equipment

**AN EXTRA MARGIN OF SAFETY**

IN the forefront of the general movement to modernize emergency life-saving equipment, the historic and renowned Boston Fire Department, under the distinguished leadership of Commissioner William Arthur Reilly and Chief Samuel J. Pope, has equipped each of its rescue companies with E & J Resuscitators. These medically accepted automatic breathing machines, strategically located throughout the city, are available day and night to the citizens of Boston, providing "an extra margin of safety" from drowning, gas poisoning, smoke inhalation and other asphyxial emergencies.

E & J MANUFACTURING CO., GLENDALE, CALIF

*Reprinted from* FIRE ENGINEERING *of August, 1941*

**COME TO THE I.A.F.C. CONVENTION IN HOUSTON, OCT. 17-21**

Visit E&J Booth No. 45 to see and operate the newest models of E&J Resuscitators — standard all-purpose models and specialized Lytport models.

E&J MANUFACTURING COMPANY

100 East Graham Place • Burbank, California


## Research Symposium

(*Continued from page* 922)

by J. Hill, Western Oil and Gas Assn., Los Angeles; "Dry Chemical Extinguishment Development," by A. B. Guise, Ansul Chemical Co., Marinette, Wis., and "New Crash-Fire Equipment," by Carl Dreesen, Shore Establishment Div., Bureau of Aeronautics.

The Sixth and final Session headed by H. J. Sieland, Dir. Equipment Research Dept., Navcerelab, will be a "Symposium Summary and Discussion."

## "Operation Firestop"

(*Continued from page* 874)

very useful and we will exploit all possibilities that we can during our tests."

Dr. Arnold said that an observer from the Strategic Air Command had witnessed the August 26th tests and that SAC might consider the use of helicopters for fire and rescue work off the end of runways where accessibility is limited to ground parties.

Jim Mace again emphasized that the testing program was just in its infancy and echoed Dr. Arnold's thoughts on a fire research program.

"Our hope is to show what can be done so that we can interest someone in a comprehensive fire research program.

"Right now, you might say that we are having a 'look-see' at what the future may hold."

Chief Klinger said that one more large-scale operation will be held at Camp Pendleton, probably in late October.

"We are going to burn some very heavy brush in the back country and get a good fire going," the chief stated. "Then we're going to try all of the methods which have proved fairly successful in our earlier tests.

"You know, many of these chemicals and methods were tested first in 'Firestop' laboratories. Then we used them on small-scale field operations. And at last we will try those which survived elimination on a big fire."

Another comment on "Firestop" came from Dr. John Gerletti, General Manager of the International Association of Fire Chiefs and former director of the Fire Administration Training Program at the University of Southern California.

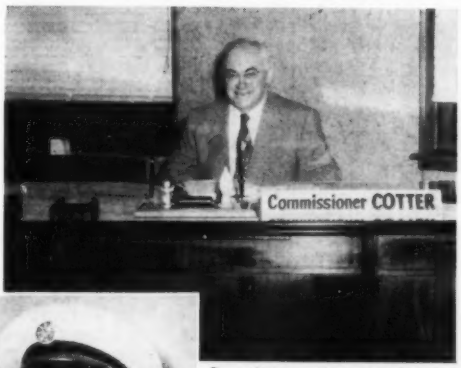
"It is gratifying to see so many agencies working together to try and solve some of these trying problems of fire control," Dr. Gerletti stated. "Firemen and professors are working side by side and I am sure the end result will be good for all. I am sure that this operation will have beneficial results for the entire fire control profession and of course, in the end, for the people of the United States."

## Adams Heads Georgia Group

Fire Chief R. M. Adams, of Bainbridge, Ga., was elected president of the Georgia State Firemen's Association at the conclusion of the group's conference in Columbus, Ga., on Aug. 27th. He succeeds Chief Howard A. Schaffer, of Marietta.

Chief W. T. McKinney, of Rome, was elected vice-president, and Chief Max Wigins were elected secretary-treasurer. Delegates at the two-day conference voted to urge adoption of a pension system for firemen in the state.

# Five More E&J Resuscitators For Boston




Commissioner Francis X. Cotter

Asst. Chief Walter E. Crouch

In the progressive development of the Boston Fire Department for greater efficiency and community service, E&J Resuscitators continue to play a vitally important part. Under the leadership of Commissioner Francis X. Cotter and Assistant Chief Walter E. Crouch, five additional portable models have recently been placed in service. Five new Booster Companies using this equipment will provide even more extensive coverage and greater life-saving protection throughout the city than heretofore available.

The decision to provide additional E&J Resuscitators for emergency life-saving was based on the outstanding record of success established with E&J Resuscitators in the Department over a period of almost twenty years.

Lt. John Frongillo, aide to Comm. George Hellen, Comm. Cotter, Asst. Chief Crouch, and aide to Asst. Chief James Hoban watch demonstration of five new E&J Resuscitators by Capt. K. C. Arnold and Hoseman Frederick Toner.

***A FREE DEMONSTRATION*** in your own Department is the surest way to get complete information on Resuscitator safety, effectiveness, medical acceptance, exact details of operation and construction and any other data you may want. If your Budget is s-t-r-e-t-c-h-e-d, the E&J Man can give you complete information on highly successful fund-raising methods and even supply a complete fund-raising Kit on free loan. To schedule your free demonstration, or request literature, just write or wire to Dept. 549-9 at the address below.

***"First Name in Resuscitators"***

**E & J MANUFACTURING COMPANY**

**100 East Graham Place • Burbank, California**

## Questions and Answers

### Converting a Tanker

*To the Editor:*

The writer knows of a fire department who has purchased a second hand oil tanker from an oil company, and who has come to him for advice.

This particular tanker has four separate tanks of varying size. At the present time, the tank has, I believe, 2-inch pipe running from the individual tanks to a manifold in the rear, with each line valved. There was talk of running these pipes into a 2½-inch header in the rear, but it is my contention that when pumping from such a header, the smaller tank would empty first and give them air in the line.

What they desire to do with this tanker is to use a portable pump, which has a 2½-inch intake and a 2½-inch discharge. For fire fighting purposes, they would connect to tanker with a 2½-inch connection to the portable and work the fire with one or two 1½-inch lines with ⅝-inch tips. By the use of quick detachable connections this pump could be removed from the tanker and used to fight fire from an adjacent pond or such water as might be available, also to fill the tanker or act as a water supply to the pumper.

The big question, however, is the manner of getting the water out of the tanker, or rather of changing the present piping, so they can draw the water down evenly from the tanker with the pumper. I do not feel they can do so with the present piping they now have, nor could they make up a system of supply that would work properly with it.

It has occurred to me that perhaps the best way to do this would be to cut an opening in the bottom of the tank and weld or braze a threaded pipe flange to the bottom of the tank, come out of that with a short nipple, to an elbow, and do the same thing with the adjacent tank and use a short nipple out of each elbow and then connect the pipe from each tank together with a piece of hose to the short nipple, using pipe clamps, thus making a flexible joint; so connecting all tanks and finally coming out of the last tank with a 2½-inch line to the portable pump.

What size pipe would you suggest to connect these tanks? I thought perhaps a 3-inch would be correct.

I also believe the filling could be done from an end tank, providing all other tanks had a vent. If filling was done from an end tank through a manhole, this tank would need no vent; if through a valve, it would need a vent. I would say it would be necessary to have a vent on the top of each separate tank to prevent the forming of an air chamber in the top which would not allow for complete filling of the tank.

I would indeed appreciate your comments. T. A. C.

*Answer:* In the layouts you suggest for connecting up the four units of the tank truck, the following objections might be raised:

1. The use of three by-passes from the three tanks would add considerably to the resistance to the flow of water and thereby might result in the tank nearest the discharge connection permitting air to enter through the vent and into the discharge line. This would occur, of course, only after the tank nearest the pump had been nearly emptied.

2. The three by-passes, being located below the level of the tank, could not be drained and in cold weather might result in the water in these by-passes being frozen.

3. Water from the end tank would have to pass through all four tanks before reaching the pump, and the second tank from the end, three tanks before reaching the pump, and so on.

An arrangement, if it could be made, which might help solve these difficulties would be to use a three-inch return line

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new one inch size
Vaseline
Sterile Petrolatum Gauze
especially adapted to a wide range of uses.
new
1" x 36" strips, in individual sterile-sealed foil envelopes. 6 envelopes in carton.
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3" x 18" strips, 12 to carton
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By request...
Developed to meet the widespread demand for a narrow dressing for small area burns and abrasions, for finger and hand injuries, for numerous other first-aid applications.
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SEE INSTRUCTIONS ON REVERSE SIDE

# BOOKS

**Recognized by the Fire Service as Standard**

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### FIRE SERVICE RESCUE MANUAL

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underneath the tanks, and tap directly to this return line from each tank. In tapping into the three-inch return line, a flange, nipple and elbow would be required at the tank farthest from the pump. A flange, nipple and tee would be required at each of the other three tanks.

With this arrangement water could be flowing from all four tanks at the same time, and the level in the four tanks would therefore drop at approximately the same rate.

There would, furthermore, be less change of air being drawn into the discharge line from the tank nearest the pump after the level of the water was low.

If two lines with ⅝-inch tips are to be employed at one time, the flow would be in the neighborhood of 150 gallons per minute. This flow could easily be handled with the 3-inch return line, and with negligible friction loss.

## Vapor Pressures, Etc.

*To the Editor:*

As a fire officer I have compiled a considerable amount of data on gases and chemicals. These data consist of flash points, ignition temperatures, explosive limits, melting points, etc., listed in respective order, high or low.

I would like to procure a list of chemicals as to their relative vapor pressures; also as to respective heat of vaporization and heat of fusion. I realize that these properties are contingent upon many factors. It would take considerable time to work them out mathematically. However, there must be such lists as described above, because questions are asked in civil service examinations as to which chemical has the greatest vapor pressure, etc.

I am taking the liberty of soliciting your help in this matter. J. P. D.

*Answer:* Tables of "Heat of Vaporization" and "Heat of Fusion" may be found in Kent's "Mechanical Engineer's Handbook," 12th Edition, which undoubtedly is on file in each and every public library in your city. This is a very popular, and frequently consulted book, and is usually a "must" for any public library.

As for tables of "Vapor Pressures," these may be found in "Fire Prevention and Protection Fundamentals," by Gilbert E. Stecher. This book is not so widely circulated, so we are giving below a list of vapor pressure figures which are found in the book:

Vapor pressure in the following table means the pressure, measured in pounds per square inch (absolute), exerted by a volatile liquid as determined by the standard method of test for vapor pressure of petroleum products of the American Society for Testing Materials.

| Substances | Vapor Pressure |
|---|---|
| Acetone | 7.6 |
| Benzene 60 degrees Be. | 0.5 |
| Benzene 55 degrees Be. | 1.3 |
| Benzol-benzene | 3.2 |
| Carbon Bisulphide | 11.1 |
| Gasoline | 15 to 40 |
| Gasoline | 9.5 to 13.5 |
| Ethyl Ether | 16.8 |
| Ethyl Methyl Ketone | 3.5 |
| Methyl Acetate | 7.1— |
| Naphtha (petroleum) | Less than .05 |
| Naphtha (V.M.-P) | Less than 1.0 |
| Methyl Ether | Above 103 lbs. —(pressure above 40 lbs. limit for class 11) |
| Petroleum Ether | 16 to 18 |
| Toluol (toluene)* | 1 |

## Water Supply for "Dry" Hydrants

*To the Editor:*

In a certain area in my city, there is located an industry on whose property several draughting plugs have been installed. The section is semi-rural. These plugs are connected with a pond or dam some distance away, probably a 1,000 feet or more.

Formerly an electric pump was available, and by placing pump in operation, water could be obtained from a hydrant. The pump is no longer in operation. It is contended that the hydrants are open, i.e., in the open position at all times. Of this I am not certain.

In the event that you intend to draft from one of these hydrants with a 750-gallon pumper, what would be the procedure of hooking up regarding sleeves?

What manipulation of valves taking

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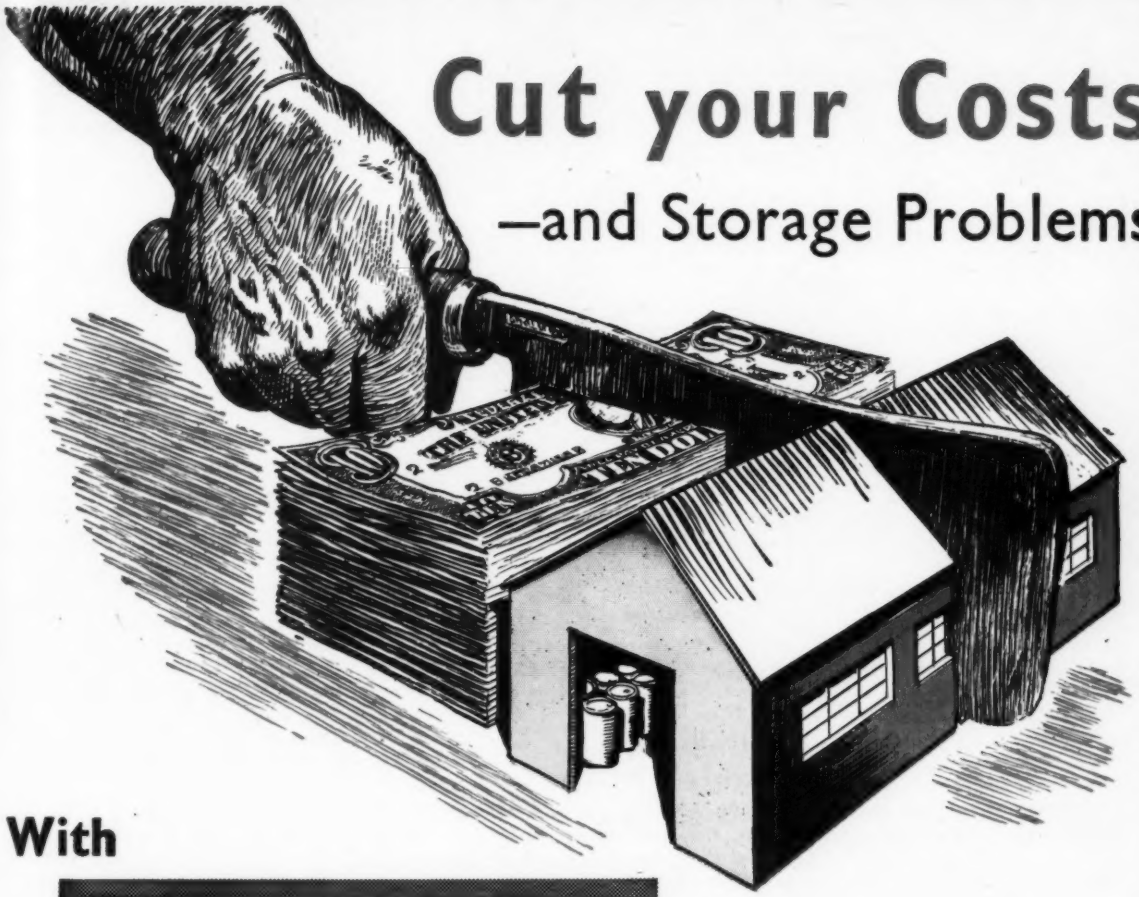

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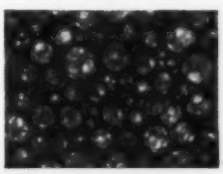

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suction would be necessary? I understand that the main is installed in such a position that a certain amount of water lies at the base of these plugs due to gravity arrangement.

What pressure is available to pump?

Would it be possible to obtain water from the hydrant you are working at in the event a plug cap had been removed from one or more hydrants (drafting hydrants) in the yard?

W. E. R.

*Answer:* A layout similar to that you suggest has been utilized successfully by fire departments protecting property near open bodies of water. The pipe line is inclined inland so that it will always remain full of water.

You state that the pipe line in question is around 1,000 feet or more in length. If this is so, and if you want to operate a 750-gallon pumper off a hydrant, utilizing the full capacity of the pumper, you would have to figure on friction losses as given below:

If the main is 6 inches in diameter, the friction loss for 750 gallons per minute flow will be from 17 to 52 pounds per 1,000 feet depending upon the age and condition of the pipe.

If the main is 8 inches in diameter, the friction loss will be from 5 to 12 pounds, depending upon the age and condition of the pipe.

If the main is 10 inches in diameter, the friction loss will be between 1.6 and 4 pounds per thousand feet, depending upon the age and condition of the pipe.

Unless the surface of the water supply source is sufficiently above the discharge outlet of the hydrant to give a pressure at least equal to the friction losses listed above, there would be danger of a pumper on the hydrant, attached to the end of the line, drawing air from one of the other hydrants between the pumper and the source of supply if the hydrants were not capped.

On the other hand, if all the hydrants were tapped tightly, so that no air could enter, then a pumper could create a negative head of possibly 25 feet on a hydrant (which would be about 11 pounds) and could secure its full flow from an 8-inch main 1,000 feet in length.

Unless the risks to be protected were such as to require heavy flow in the event of fire, then it is possible that the layout would be satisfactory. It should be expected to give at least one good fire stream, even if the main is only 8 inches in diameter, provided all hydrants except the one being employed were capped tightly.

## Range of Foam and Water Streams

*To the Editor:*

I own a copy of "Fire Service Hydraulics." With reference to "Range of Foam Streams," Page 153, the sixth item is similar to one of our evolutions in that generator pressure is 100 p.s.i.; discharge hose is 100 feet; nozzle used is 1¾-inch. Now the questions which have arisen in my study group are these:

1. How is the loss of 88 p.s.i. from

generator to nozzle explained?

2. Why is the range of stream so long for so little pressure at base of playpipe? F. J. R.

*Answer:* As foam is far more viscous than water, the friction loss in a line carrying foam will be much greater per hundred feet than the friction loss in a line carrying water.

Of course, the consistency of the foam has a very marked effect upon the loss in pressure. If the foam is thin and slimy, the loss will be far less than if it is fairly dry and sticky.

With regard to the range of foam and water streams, it should be pointed out that the effective range of a water stream is the distance from the nozzle to a point where 85 per cent of the volume will pass through a circle 15 inches in diameter. Beyond this point the stream is considered ineffective and the carry of the water beyond the circle is not considered as part of the range of the stream.

Specifically, if we have a ¾-inch nozzle at 100 pounds, we get the extreme limit of a good fire stream at 70 feet where the average of extreme drops will travel 167 feet.

With a 1⅛-inch nozzle at 100 pounds, the extreme limit of a good fire stream is 90 feet, whereas the average of the extreme drops is 230 feet. In other words, some of the water, in the form of drops, will travel a distance over twice as far as the range of the effective fire stream.

With a foam stream it is different. A foam stream breaks up fairly near the nozzle, and there is no criterion for determining the point of limit of effectiveness. Ordinarily, the range of a foam stream is taken as the distance from the nozzle to a point where a reasonable portion of the foam hits the target.

Because of the fact that foam weighs so much less than water, it requires materially less pressure to give a nozzle velocity to foam than to water.

A consideration of the two conditions above will explain why foam streams have greater "range" than water streams for a given nozzle pressure.

## A.I.E.E. Schedules Fire Protection Topics

Power plant safety and fire protection were discussed in a session at the Middle Eastern District Meeting of the American Institute of Electrical Engineers at the Abraham Lincoln Hotel, Reading, Oct. 5-7, Walter B. Morton, General Chairman, announced.

The District includes the states of Pennsylvania, Ohio, West Virginia, Maryland, Delaware and the southern part of New Jersey, and has 8,000 AIEE members.

The safety and fire protection papers, presented at the morning session, Thursday, Oct. 7, were: Protection Against Fires—Large Steam Turbine Generator Units, by L. P. Grobel and J. J. Gibney, General Electric Co.; Safety and Fire Protection in Generating Stations, by G. F. Briner, Gilbert Associates; Turbine Oil Fire Protection, by W. H. Lawton and C. F. Averill, Grinnell Co., Inc., and Fire Protection from an Operating Viewpoint, by E. F. Weaver, Pennsylvania Power & Light Company.

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*Above—FZZ Relaying through Major Pumper.*

*Above—FZZ Pumping Foam (Foam proportioner built in if specified.)*

**The unit will supply from draft, 60 U. S. Gallons per minute at 90 lbs. pump pressure, and up to 150 U. S. Gallons per minute at 30 lbs. It can supply two capable fire streams through 1½" hose lines using nozzle tips up to ½".**

**Note:** Discharge adapter can be supplied for use with 2½" hose.

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# SINCE 1836


## Baltimore County

(*Continued from page 882*)

training, lectures on fire prevention are given and alarm procedures explained.

The State-sponsored University of Maryland program is also utilized. There a one-week course is presented in September and an advanced twenty week course also is available. Virtually every volunteer department sends at least one man annually to attend the one-week course, and about ten of the volunteers have completed the longer course and are listed as instructors.

Men from the paid department also take advantage of these courses. On their own time, about twelve men yearly attend the short course. At the same time, instructors in the paid department take the short course as part of their basic training.

### New Headquarters Will Centralize Activities

Pride of the Department is a new Fire Headquarters which is expected to be completed this year. Costing approximately $750,000, the new facilities will combine the scattered training lots, maintenance activities, and Headquarters Station and provide adequate office space for the Department.

Included in the plan is a complete training lot with simulated fire hazards of all descriptions; Headquarters offices including an auditorium, space for the Fire Prevention Bureau and the Central Alarm Room; Fire Engine House with Dormitories; and a large repair shop complete with painting facilities, and a ladder, hose, and portable extinguisher repair shop.

### Department Maintains Ambulance Service

Available to the paid Department are six ambulances with two-man trained crews for emergency work. At the same time, eight additional ambulances are maintained by the volunteer departments. During 1953, 4,334 calls were answered by the paid ambulances and they ran a total of 68,162 miles.

### Fire Prevention Bureau

The Department's Fire Prevention Bureau is staffed by six men and a secretary and, according to Chief Orban, has done an outstanding job of correcting hazards uncovered by inspections. The Bureau has placed particular emphasis on inspections of hospitals, schools, mental institutions, and industrial plants. Undoubtedly, the correction of inspection exposed hazards has eliminated some fires that would have occurred and even more important, caused many institutions to establish programs designed to minimize losses should fire flash.

It is pertinent to note that this Bureau made 98 post fire investigations, 6,219 regular inspections, 1,972 check backs, and investigated 1,434 complaints. At the same time it carried on a full program of fire safety education.

### County Water Supplies

The fire main network in the County is classed as "good" by Chief Orban. While in some areas rapidly expanding housing developments have outdistanced

new main construction, the mains which range from 36" to 8" in diameter largely fill the existing needs and by 1958 all residential areas of the County will be fire main equipped. Hydrants in the County have two 2½" couplings and a 4½" suction, and the mains are tied into and controlled by Baltimore City mains.

Of course, rural country areas must depend on auxiliary water supplies such as tank trucks, or the numerous ponds, streams, or lakes which dot the County.

### Annual Fire Loss Remains Steady

The greatest tribute to the Department's efficiency is revealed by a review of annual fire losses. In 1953, the paid department answered a total of 2,946 calls and the damage sustained as a result of the fires was $524,000. This compares with an average annual ten year loss of $480,000. Over the same period the population of the County is estimated to have doubled and property values similarly increased!

## News of the Manufacturers

(*Continued from page* 919)

address letters to any one of the three company plants in Ridgewood, New Jersey; Morton Groxe, Illinois, and Longview, Texas.

### Sharpsville Fire Apparatus

Sharpsville Steel Fabricators, Inc., of Sharpsville, Pa., have recently issued an attractive four-page bulletin, illustrated and with color, describing the various types of fire apparatus which they build. These include squad cars; emergency cars; tank trucks; service, crash and ladder trucks, and volume and pressure pumpers. Copies of this bulletin are available upon request to the Company at the address above.

### Traffic Control System for Responding Fire Apparatus

"Conn-Tec," a radio emergency traffic control system recently developed by Connecticut Telephone & Electric Corporation, Meriden, Connecticut, has been demonstrated to the City of St. Paul, Minnesota, officials under the supervision of Chief Wm. Mattocks of that city.

The equipment, recently developed by Connecticut, was put through operational tests at the company's research laboratories and was "life" tested for many months before the demonstration was made.

For the demonstration, the City of St. Paul installed the emergency traffic control receivers at eight consecutive intersections on Roberts Street, which they consider their most highly congested thoroughfare during peak traffic periods.

The radio electronic traffic control was set for approximately 2000 ft. and tripped off interstections four blocks ahead of the on-coming emergency vehicle. The small radio transmitter, Type TC-2, was installed in the Fire Chief's car, under the front seat.

A unique directional antenna was mounted on the hood of the car and a control box installed under the dashboard. When the control box switch was turned to the "On" position, the radio waves would pre-empt the TC-2 control receivers four blocks ahead of the emer-


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gency vehicle and one block on either side, turning all four traffic lights at each intersection to "Red." The signal holds the intersection lights at "Red" until the emergency vehicle has proceeded past the intersection for one block. Consequently, all traffic is halted and the emergency vehicle proceeds unhindered.

Installation of the equipment, which operates on FCC approved frequencies, does not conflict with existing electrical networks or contemplated modifications of traffic signal control functions.

### C. H. Randle Advanced

The Gamewell Company of Newton Upper Falls, Massachusetts, has announced the appointment of C. H. Randle to the position of District Manager for their Pittsburgh office.

C. H. Randle

Mr. Randle has been with Gamewell since 1923, and in their Pittsburgh office as a Sales Engineer since 1940. He is a graduate of Waltham, Mass., High School and Wentworth Institute, Boston.

### "High Fog" Pump

Manufacture of a new high pressure, 4-stage centrifugal pump for use on fire fighting equipment has been announced by Associated Fire Equipment Company of Los Angeles.

Known as the "High Fog" Pump, the unit is characterized by its light weight (210 lbs.) and small overall size, making it adaptable for installation on existing fire equipment.

The unit is capable of 60 to 80 GPM with 600 to 800 pounds pressure and has a 2" intake and 1½" discharge. Power take-off can be made from the transmission with opposite-engine or engine

rotation available. Additional information is available from the manufacturer, Associated Fire Equipment Company, 1915 S. San Pedro St., Los Angeles, California.

## Hartford Wins Fire Prevention Trophy

At a dinner in the Bond Hotel, Hartford, Conn., on Sept. 14, sponsored by the Chamber of Commerce, this city's fire prevention record was honored by civic leaders, municipal officials, and top executives of the property insurance companies. Guest of honor was Chief Henry G. Thomas. The guest speaker was Thomas S. Gates, Jr., Undersecretary of the Navy.

One feature of the dinner was the award of the National Board of Fire Underwriters' silver fire prevention trophy to the Hartford Chamber of Commerce. J. Victor Herd, president of the National Board, made the presentation.

The Hartford Chamber of Commerce, as a three-time grand award winner in the Inter-Chamber Fire Waste Contest of the National Fire Waste Council, took permanent possession of the cup, which has been in the custody of various chambers of commerce throughout the country during the last 15 years.

Another feature of the affair was the premiere showing of the National Board's new 16 mm. color film, "Before They Happen," which deals with a typical day's work in a fire inspection bureau.

In the film the fire inspection bureau depicted is Hartford's and the leading role, a real life portrayal, is played by Fire Marshal George Kennedy, who has been with the fire department of Hartford 19 years.

"Before They Happen" had its inspiration in another of the National Board's popular fire prevention films, "Crimes of Carelessness," which was produced eight years ago and which has been viewed by millions in community audiences and shown by nearly every television ' station throughout the country.

The National Board is now featuring "Before They Happen" as a successor film to "Crimes of Carelessness" in its film library. The library contains 27 films. These are available for free public use on request to the Bureau of Communication Research, Inc., 13 East 37th Street, New York 16, N. Y.

## Urge Separate Fire Departments in Quebec

Delegates at the convention of the Provincial Federation of Quebec Fire Fighters in July strongly urged a "Fire Departments Act" for the Province of Quebec.

Among the resolutions adopted by the delegates from all parts of the Province that have separate fire departments (i.e., operating independent of police) was one urging more effective help from the Provincial government in order to encourage cities to install separate fire departments.

The practice of merging fire and police and of the members of these services performing joint fire fighting and law-and-order duties, continues to draw criticism in Quebec Province, from which the idea spread to the United States.


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TOP NOTCH SIREN "FALL" CORK

3" HIGHER ST. KING LENGTH FOR QUICK ADJUSTMENT AND MORE PROTECTION

OUTSIDE, EXTRA RUBBER REINFORCEMENT ABOVE KNEE

ENTIRE SKIRT NET LINED FOR AMPLE STRETCH

STURDY INSIDE PULL-ON LOOPS AT KNEE

WARM WOOL LINING

REINFORCED KNEE PATCH OF CREPE RUBBER

VULCANIZED BY AMMONIA CURE—PATENTED EXCLUSIVE FEATURE

SIX PLIES OF FABRIC AND RUBBER THROUGHOUT LEG

SPECIAL STIFFENING COLLAR FOR EASY FITTING

FABRIC AND RUBBER IS "SHINGLED" TO DISTRIBUTE STRAIN

FOURTEEN PLIES OF FABRIC AND RUBBER WITH SPECIAL FRONT STAY

MADE OVER SPECIAL LAST, FULLER THROUGH THE ANKLE AND INSTEP

NINE PLIES OF FABRIC AND RUBBER AT THE VAMP

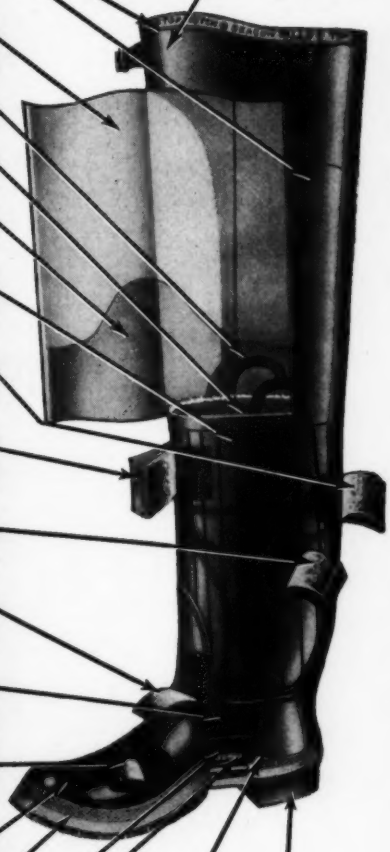
REINFORCING TOE CAP PROTECTION

EXTRA THICK SUPER-QUALITY SOLES

FELT COVERED CUSHION INSOLE

REINFORCED LADDER SHANK

SPECIAL HIP WITH HIGH FRONT SKIRT, ALSO IN SHORT HEIGHT



FULL SIZE HEEL

THICK SIDE GUARDS AT SHANK-PROTECTION AGAINST NAIL OR SPLINTER PUNCTURING

BEACON FALLS RUBBER FOOTWEAR
BEACON FALLS, CONNECTICUT

## Power Plants

(*Continued from page 884*)

on TVA construction projects. And TVA building fire losses—always 75% to 80% construction—dropped from an average of $215.00 in 1952, before standard adoption, to $61.00 in 1953.

### Outline for a Fire Protection Survey of a TVA Project*

Project..... Date..... Made by.....
Brief description of camp and construction areas, etc., needing protection.....
.....

I. Personnel and Training
- A. Manpower Available
  - 1. Officers..... Supervisors..... Total.....
  - 2. Number on duty each shift: Day..... Evening..... Graveyard.....
  - 3. Patrol coverage.....
  - 4. Fire Posts.....
  - 5. Full-time fire fighters.....
  - 6. Auxiliary brigade or volunteers trained and available.....
- B. P.S.S. Fire Training
  - 1. Frequency and type of drills held .....
  - 2. Practice on make-believe fires in buildings .....
  - 3. Use of live fires.....
  - 4. Classroom training.....
  - 5. Major material available for study .....
- C. Status of first-aid training.....
- D. Cooperation from safety engineer on fire problems.....

Remarks on Personnel and Training:

II. Fire Prevention
- A. Inspections
  - 1. Made by .....
  - 2. Frequency for each class of building .....
  - 3. Equipment .....
  - 4. Hydrant .....
- B. Describe major fire hazards.....
- C. Housekeeping conditions at project .....
- D. Success or difficulties getting corrections .....
- E. Educational measures
  - 1. With village and dormitory residents .....
  - 2. Training all TVA employees in detection, correction, fighting....
  - 3. Posters, bulletins, etc., used.....

Remarks on Fire Prevention:

III. Fire Experience at Project to Date
- A. Age of project:.....Years..... Months.....
- B. Number of building fires..... Loss $.....
- C. Number of other fires..... Loss $.....
- D. Deaths or injuries resulting from fires .....

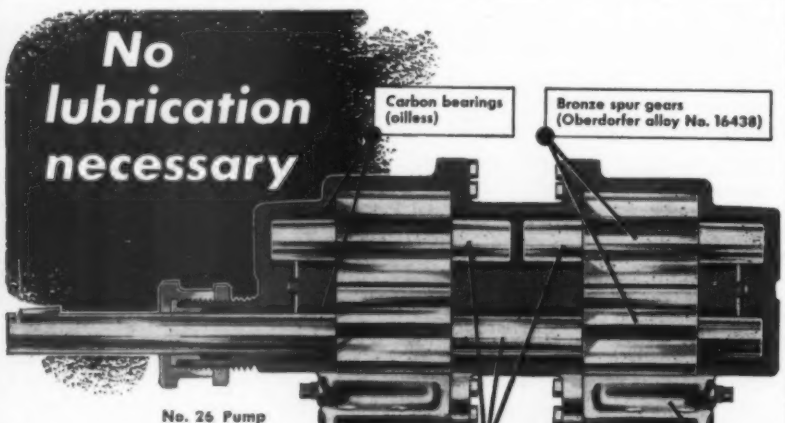
Remarks on fire experience at project to date:

IV. Water Supply
- A. Describe in relation to fire protection
  - 1. Treated water system.....
  - 2. Raw water system .....
- B. Storage capacity (explain fluctuation) .....
- C. Size of mains, kinds of pipe.....
- D. Type and location of hydrants....
- E. Minimum and maximum hydrant pressures .....
- F. Pumps
  - 1. Number, type, and capacity of each at intake.....
  - 2. Number, type, and capacity of each at clear well (if hydrants on clear supply) .....
  - 3. What if power to pumps should fail? .....
  - 4. Provision for quickly manning pumps for large fire.....
  - 5. Is there assurance of at least two 250 gpm fire streams for two hours at all times (60,000 gallons)? .....
- G. Drafting sources.....

Remarks on water supply:

V. Fire Fighting Equipment
- A. Fire trucks
  - 1. Kind, type, capacity, age, other jobs it has served, etc., of each truck .....
  - 2. Hose, size and quantity.....
  - 3. Booster tank and hose.....
  - 4. Describe chassis.....
  - 5. In addition to standard equipment, does truck have (how many):
    - Fog nozzles.....
    - Foam nozzles.....
    - Wet water equipment.....
    - Dry chemical truck-mount.....
    - Dry chemical extinguishers.....
    - All purpose gas masks.....
- B. Hose Houses
  - 1. Number and locations.....
  - 2. List equipment in each.....
- C. Fire Extinguishers
  - 1. Give approximate number of each type by sizes.....
  - 2. Maintenance .....
  - 3. Distribution .....
- D. Describe any sprinkler or $CO_2$ system .....

* Prepared by C. A. Key, DRP; and D. E. Nolting, H&S.



No lubrication necessary
Carbon bearings (oilless)
Bronze spur gears (Oberdorfer alloy No. 16438)
No. 26 Pump
Piston-finished stainless steel shafts
Bronze housing (Oberdorfer alloy No. 741)

the new
OBERDORFER
BRONZE BOOSTER PUMPS

These booster pumps with oilless bearings will last 3 to 5 times longer than the old style equipped with plain bronze bearings. As a result of closer machining tolerances, over 20 feet of suction lift may be depended on.

The No. 13 and No. 26 Oberdorfer Pumps are more fool-proof than they have ever been. When you get to a fire you have something you can count on. It isn't necessary to wear pumps out checking them periodically to see if they will work. These pumps are metering pumps in principle and therefore must produce the same volume for every revolution of the drive shaft.

**PERFORMANCE DATA—No. 26 and No. 13 PUMPS**

| Pump No. | Pump Shaft R.P.M. | Pounds Pressure | Hose Length and Size | Dry Suction Lift in Feet | Vol. in Gal. Per Minute |
|---|---|---|---|---|---|
| 26 | 1600 | 120 | 500'—1½" | 20' | 150 |
| 13 | 1600 | 120 | 500'—1½" | 20' | 75 |

FIRE PUMP DIVISION, Oberdorfer Foundries, Inc., Syracuse, N. Y.

E. Describe any standpipe and hose systems .....
Remarks on fire fighting equipment:

VI. Alarm Systems
A. Regular telephone system.....
B. Separate fire-police telephone system .....
C. Sirens, manual or automatic.....
D. Radio or walkie-talkie.....
E. Automatic with break-glass boxes .....
Remarks on alarm systems:

VII. Mutual Aid Arrangements
A. Knowledge of what each (TVA and town) can furnish in emergency .....
B. Informal agreement, clearly understood .....
C. Telephone numbers, or ways to call those authorized to send men and equipment.....
Remarks on mutual aid arrangements:

VIII. General Comments:

---

## What Makes a Good Fire Department?

(*Continued from page* 886)

by the amount of money you have to spend.

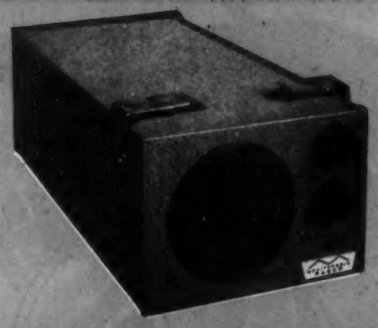
Let us start with hose because if no hose—no dice. A good police department would not think of supplying their police officers with inferior revolvers. It could be suicide. In like sense a good fire department should have good hose. I consider hose the fireman's revolver. It protects him as well as the property or life he is trying to save. So buy good hose. Pay, if you can, the price of the upper grades; experience proves that the better hose is more reliable and *does* last longer, and therefore, is actually less expensive in the long run.

Pumpers should fit the needs of your community. If the water system will supply the volume, large capacity pumpers are useful. You won't use the full capacity many times but it is there when you need it, if you have the water. If your mains and water supply are not up to the big pumpers, forget them—the smaller capacity pumpers then are actually more useful. And out in rural sections, where water supply is missing, straight pumpers might be useless. There tankers with pumps are indicated. So it all depends where you are and what you may be called upon to do.

But all good fire departments should be equipped with the facilities and tools to use, i.e., water fog, both high and low pressure, when circumstances and conditions warrant. Then there is the application of foam in its various forms, wetting agents and the various other types of extinguishing agents now on the market. Again it all depends on what you may be required to do.

In the matter of ladder trucks, there is such a variety of types and sizes available and such a wide field of uses in every city or town, that it would be folly to even suggest what is best suited to make your department better, but in any case a good department will buy good standard makes, whether it be pumpers, ladders, hose wagons, squad cars, etc., of suitable size and type, and in sufficient quantities to meet the individual needs of your department. I believe it is an accepted practice that aerial trucks should be equipped with either a fixed ladder pipe or the quick clamp-on type.


THERE'S A FIRST TIME FOR EVERYTHING



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MODEL FMC 1-L-6
Single Frequency 30-50 MC

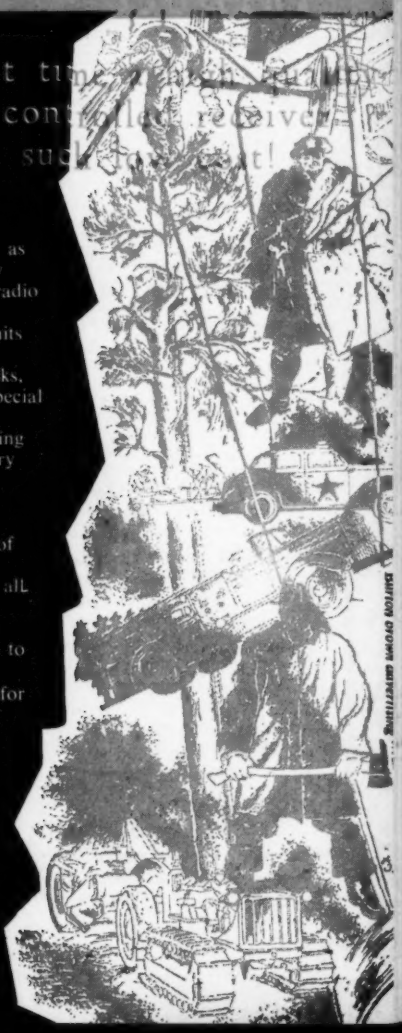
MODEL FMC 1-H-6
Single Frequency 147-174 MC

NOT a Converter!
BUT a completely tamper-proof, self-contained receiver!

and this is the first time [illegible] mobile FM crystal controlled receiver has been offered at such [illegible]!

Both of these units are invaluable as additional receivers for separate frequency channel monitoring to supplement 2-way radio communications systems. They are ideal as monitors of 2-way systems in mobile units not requiring a transmitter. Perfect for dispatching service cars, ambulances, trucks, buses, salesmen, civil defense personnel, special investigators, special police, volunteer firemen, fire truck units, taxicabs, for alerting industrial power and public utilities, forestry and railroad personnel, or use as a Walkie-Talkie monitor. They can be used for intercom between vehicles on two frequency systems. These are only a *few* of the uses that are limited only by the imagination! They are housed in durable, all metal cabinets. Simple to install, universal mounting...you have nothing to adjust! All units are shipped with crystal installed to order and aligned to frequency. Available in both 6 and 12 volt versions for 6 and 12 volt battery ignition systems.

*For information on complete line of fixed and mobile communications receivers, write for form 22.*



RADIO APPARATUS CORPORATION
55 NORTH NEW JERSEY STREET
INDIANAPOLIS 4, IND., PHONE: ATLANTIC 1024

MONITORADIO

Although I fear the following may be subject to argument, I personally believe it is a step forward, a definite addition to department efficiency. This is the equipping of ladder trucks with booster tanks, a high pressure pump, and one or two reels of 250' of small H.P. hose with gun type fog nozzle. Many small fires can be extinguished quickly without using a large line and pumper. Sure, connect up the first due pumper and stretch a large line just in case, but quite often it is not needed and the resultant saving in water damage is good for the property owner and mighty good public relations between the taxpayer and your department.

Therefore, summing up in general: a good department buys good apparatus, has the required number of each type and then locates the companies with relation to proper spacing of fire stations. And finally, equip each piece of apparatus with all the standard, required small tools to make the unit a complete, useful fire fighting company, whether it be a pumper, ladder, squad or hose wagon, and by all means supply each company with a sufficient number of smoke masks and breathing equipment.

## Maximum Age for Apparatus

As to the age of apparatus—this is debatable, because in large cities some companies get much more service than the same type of apparatus gets in the smaller city or the rural community. But it is generally conceded that pumpers getting a lot of mileage as well as pumping hours, if properly maintained and serviced, should be good, useful units for at least fifteen years. That goes for ladder trucks as well. A replacement program will keep engines and ladders in good working condition. Experience indicates that chief's cars and squads should be replaced in from five to seven years, and with the minor pieces, it all depends on how much service they get. With a regular replacement program, there are no big year purchases, no lean years; It's all scheduled; the budget director knows in advance what is to be asked for, and your apparatus is regularly replaced when it arrives at its replacement age.

Having practically covered the field I shall bring this to close with the Fire Fighting Division—the largest and most important part of any department. It is the men in uniform, the chief of department, his staff, and the chiefs of battalions, and the officers and men who put out the fires. It is the boys in blue whom the public know best and whose activities can easily keep the department at the top, or just as easily drop it, in the eyes of the taxpayers and the public generally, regardless of how good and efficiently they respond to alarms and put out fires.

Remember, I am attempting to describe a *good* Fire Department. Therefore, the chief of department should have administrative capabilities and should be able to meet the public. Nevertheless, he should be an experienced and seasoned fire fighter, a leader of his officers and men, a man who has attained his rank before he is too old, and he should enforce the department rules with firmness but with fairness and reason, so as to maintain proper discipline and still keep the respect of his officers and men. The chief should not be a political appointee, but have come up through the ranks, and have the same civil service protection as all the other personnel of the department. And these qualifications apply as well to his immediate staff of assistants, including division, district and battalion chiefs as well as company officers.

Chief Officers should be at least *reasonably young*. Averaging the ages of company officers and men, an ideal *average age* of a department is placed between 35 to 40. Therefore, fire fighters below the rank of a company officer are assumed to be young, active men. No insult to the higher ranks; it is not to be expected. It takes time and experience to get up there, but the younger your recruits, the younger the eventual officers.

Practically all recruits are capable young men of high caliber, young men who like the life and work of a fireman. With proper training, good supervision, and a knowledge that they will be treated fairly, receive a decent salary, and have good working conditions, it should not be difficult to maintain a high standard of efficiency and a department spirit and pride that all goes into keeping a department up at the top.

With all this, one can readily expect to find apparatus clean and shining, fire stations with good housekeeping, company members in proper uniforms that are in good condition, men who respond with quick action when they receive an alarm and who go to work at a fire with well planned company maneuvers; who know how to properly use their apparatus and tools, and who most of the time forget self but only keep in mind the job before them; yes, very often

Shuredry Green-Bak Covers will pass the test specified by the National Board of Fire Underwriters. They also carry the approved symbol of the Associated Factory Mutual Fire Insurance Companies.

Damage from water and smoke is cut down when SHUREDRY Green-Bak Salvage Covers are on the job. Only the finest quality, treated cotton duck, which is pressure impregnated by the exclusive Fulton dry-treatment, is used in SHUREDRY Covers. All seams are waterproof, and SHUREDRY Covers are light — pliable and easy-to-handle. For top dependability — specify SHUREDRY when ordering salvage covers from your Fire Equipment Dealers.

Fulton BAG & COTTON MILLS

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with utter disregard for personal safety, performing acts of heroism beyond the actual call of duty. That is the spirit of a good fire department.

By now you may have thought of some details that could be added that make a good department, things I have omitted to keep this article from getting too long, but I have tried to hit the high spots, cover the subject in a generalized manner, and trust I have not set the standards too high.

It is all possible but it requires planning, supervision, time, and here and there—money.

## Exposures

(*Continued from page* 879)

joining building,—or to an unconnected building or outside exposure, by means of several methods: Taking first communication to adjoining structures, by means of:

Unprotected openings in walls, such as windows, doors, etc. Also through apertures in walls where timbers have been built in.

By flashing over or around walls, parapets and partitions.

By means of cornices.

As a result of collapse, or falling walls, roofs or floors, resulting in the scattering of sparks and embers.

By radiated heat, where one building overlooks another.

**Communication to Exposures Not Adjoining:** Fire may spread to buildings or materials removed from the original fire by means of:

Combustible exterior walls or trim.

Flying brands or embers from combustible roofs making direct contact with combustibles.

Transmission of heat through plain or wired glass in windows or doors, to ignite combustibles.

By radiated heat emanating from the original fire.

Convection currents or super-heated air and gases.

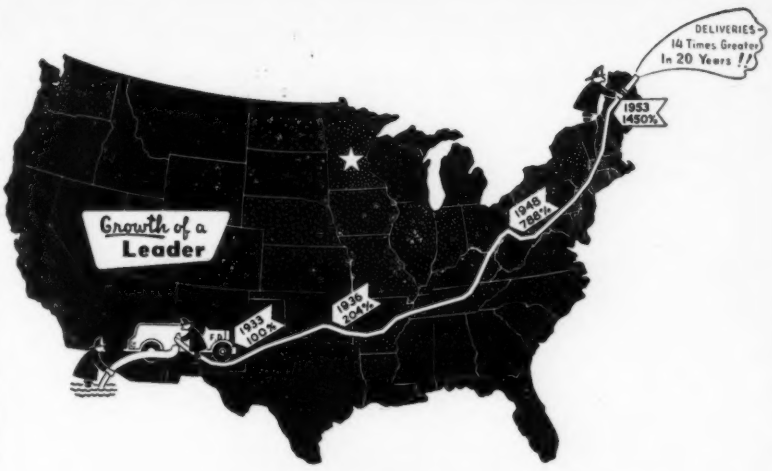
### Exposures in Congested High Value Areas

The most serious of the exposure problems, from the viewpoint of the fire protection engineer, because of the enormous life and property hazard involved, are obviously those encountered in heavily tenanted business and industrial districts of cities and towns.

We have said that every municipality has its high hazard, high value district. This is its potential "conflagration area," and here the problem of exposure is most acute.

Re-zoning, new construction; the shifting of mercantile and industrial enterprises and changes in occupancies and production processes are continually affecting these high value areas, for better or worse, usually the latter, from the fire risk standpoint. The addition of even modern, fire-resistive buildings does not afford complete freedom from fire damage to their contents, when exposed to severe external exposure, as long as contents are combustible, and fire can communicate through unprotected exterior openings.

The hazards to this type of building are especially great where its windows overlook a lower, adjoining building of combustible construction. It is regrettable, but true, that in practically every city today buildings erected with a prudent eye to fire-resistance are virtually


Each dot represents a community protected by one or more WATEROUS fire pumps.

# What's happened at Waterous since last year's convention?

● During the past year, demand for WATEROUS fire pumps continued to grow. As shown in the above graph, more than *fourteen* WATEROUS fire pumps were sold in 1953 for each one sold in 1933!

One reason for this remarkable increase is that more and more of today's buyers are insisting on dependable performance. These buyers are making exacting comparisons and are demanding *thoroughly proven* pumps for their new fire engines.

During the past year, three important new pump models were announced by WATEROUS.

The CD-4 is a big, high-capacity pump that meets full "Class A" requirements by delivering its rated capacity of 1500 GPM with a single 6-inch suction hose from a 10-foot lift.

The CF-3 is a revolutionary 500 GPM front-mounted centrifugal. It features a rugged "over-center," single plate, dry, automotive-type clutch which may be engaged or disengaged *at any speed.*

Newest addition to the WATEROUS line is the CA-1B . . . an improved, single-stage 500 GPM midship centrifugal.

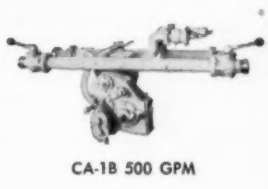
For further information on these or the complete WATEROUS line, visit Convention Booths 42-43 or write WATEROUS Company, 40 Fillmore Ave., St. Paul, Minn.

MEMBER FAM FIRE APPARATUS MANUFACTURERS ASSOCIATION

***3 new WATEROUS fire pumps announced during past year.***

CD-4
1500 GPM

CF-3 500 GPM
front-mounted


CA-1B 500 GPM

**Waterous**
**DEPENDABLE PUMPS**
*SINCE 1886*

surrounded by weak and flagrantly unsafe construction.

No more striking example of this fact is found than the previously mentioned Burlington Building fire, in Chicago, in 1922. Here a 16-story office building, constructed in the then approved manner, though without inside sprinklers or wired glass windows, paid the penalty of hazardous surroundings.

### Conflagration Temperatures

Any study of exposures and exposure hazards should take cognizance of the fact that terrific temperatures are generated in severe exposure fires and conflagrations. Even in some fires of limited scope, the heat generated may make it impossible for fire fighters to approach within effective stream range and the heat given off may ignite exposures at considerable distances.

An indication of the heat developed by conflagrations is found in the fact that at the Baltimore holocaust of 1904 an estimated heat of 2,800 deg. F. was encountered in certain places. It is said that a maximum of 2,200 deg. F. and a mean of 1,500, was experienced in the burning of San Francisco in 1906.

At another outstanding exposure fire, the Burlington Building in Chicago in 1922, the temperature reached 1,800 deg. F., so that metal desks and filing cabinets of steel were literally flattened out, and brass fittings reduced to a formless mass. Even the wooden strips embedded in the cement on which floors were nailed, burned out.[3]

Temperatures during fires in bombed out cities of Germany and England reportedly exceeded even the maximum heats developed in the above conflagrations.

Conflagration temperatures are affected by the wind, both that which is normal at the start of the fire, and the air currents created by the thermal reaction of the fire. Wind has a decided bearing on exposure fires. The fundamental circumstances of a conflagration occur at any serious fire; a column of burning gases and hot air ascends over the fire. As it does, air is sucked in at the sides creating air currents that may reach a velocity of 50 m.p.h. Firemen operating on hot fires in the open have experienced the sensation of having a cold draught on their back, while their faces were being scorched.

Where there is no natural current of air to offset this phenomenon, the air movement is nearly always toward the center of the fire. Natural wind currents tend only to incline the pillar of rising and burning gases.

This heat-created artificial wind increases the difficulty of fire control, yet nevertheless, it may tend at least for a time, to restrict the fire's extension by convection. Spread of sparks and embers may be almost vertical until they reach a height where the upper air currents overcome the rising heated-air currents, when they then will be borne along on the cooler currents. This characteristic has been noted at numerous large scale holocausts. Under the conditions, exposures considerable distances away may be ignited, depending upon the combustibility of the exposed material, and the degree of heat in the airborne embers.

It is not unusual for such flying embers to enter windows or other openings of exposures far removed from the original fire, and there to ignite combustible material with which they come in contact. These incipient contact fires, if not promptly discovered, may in turn develop into their own exposure fires, feeding and growing in turn upon other exposed combustibles.

### Protection of Exposures

There are three general methods of protecting exposures against fire spread: (1) by building with fire-resistive construction, according to accepted fire-safe codes and standards; (2) by installing permanent built-in fire detection, alarm transmission and extinguishing systems; and (3) by efficient fire department operations.

**1. Construction:** Protection of interior exposures should nominally begin with the architect, builder and owner of the building; actually, many believe it should begin with a comprehensive building code. Many cities, alive to the menace of fire communicating by exposures, have passed ordinances designed to eliminate most of the interior exposure hazards in new construction. The problem has been to make fire-safety measures retroactive. Thus, for example, most cities and towns have outlawed the old wood shingle roof, the cause of fire loss in the dwelling classification alone of $38 million in the five years ending 1920.

Fire-safe buildings, so called by reason of their internal construction, may offer little except their contents for flames to feed on; they may, by provision of vertical and horizontal cut-offs

• CLEVELAND
• NEW YORK
• PHILADELPHIA
• BOSTON
• CHICAGO
• SEATTLE
• HOUSTON

are among cities whose fireboats are powered by GM Diesel engines.

# In Fireboats
## *the Trend is to DIESEL*

## GM DIESEL POWERED FIREBOATS have these advantages:

***Readiness:*** GM Diesel engines start at the push of a button—ready for action at a minute's notice without warm-up.

***Economy:*** Eliminates cost of keeping steam boilers fired up round the clock. Switch to GM Diesel on two fireboats saved Boston $42,500 a year over oil-fired pumpers.

***Flexible Power:*** Front power take-offs permit use of full power for either propulsion or pumping. Multiple-engine arrangement provides extreme flexibility and reserve pumping capacity.

***Modern Power:*** Compact, high-speed 2-cycle GM Diesel engines direct connected to high capacity pumps occupy little space. Leave more room for work and living quarters.

*For complete information contact your GM Marine Diesel Distributor or write us.*

**DETROIT DIESEL ENGINE DIVISION**
GENERAL MOTORS • DETROIT 28, MICHIGAN
Single engines 30 to 300 H.P. Multiple Units . . . Up to 893 H.P.

GM GENERAL MOTORS DIESEL POWER

and the installation of automatic sprinkler systems, be able to control or extinguish a blaze, but beyond this according to the National Board of Fire Underwriters, they "have little right to be called 'fire-resistive,' so long as their exterior openings remain unguarded."

Although the methods and materials used in present-day construction have done much to minimize the damage to life and property by fire, the fact remains it is still possible, even with the newer construction, to suffer a 50 per cent loss to both the property and contents.

As we have said, the best protection against exposure is open space between buildings or combustibles, with clearance dependent upon combustibility of the structures, the contents or nature of occupancy.

Where necessary clearance is not possible and where protection against exposure to hazardous operations within a single building is desired, non-combustible parapeted fire walls without openings are recommended by the National Board of Fire Underwriters.

Every fire protection engineer knows that brick walls of adequate thickness and rigidity, unrelieved by openings of any kind, constitute one of the best of fire stops. But he knows that, save in exceptional cases such as warehouses and like tenancies, adequate windows are almost the builder's first concern. And this tendency has increased over the years to the point where, today, office and mercantile, and even industrial, buildings offer less and less solid exterior wall construction and more and more glass. The extent to which this predominantly glass wall construction may accelerate exposure fire is of growing concern to fire fighters. It may be determined by the next big conflagration.

Meanwhile the experts say "windows and other wall openings need protection, not only against fire in other buildings, but also to prevent fire spreading from story to story"[8]. But windows admittedly present the principle problem in protection against exposure in fire-resistive non-combustible and all-masonry wall buildings. Door openings are relatively few in number and more easily protected by the use of standard fire doors.

Where buildings are divided into sections by fire walls, and openings exist in the walls, they also should be protected by approved fire doors, properly installed and automatic in operation.

Protection of buildings with masonry exterior walls against exposure from open combustible storage or wood frame construction may be effectively secured by requiring openings to be bricked-in (properly bonded) or the installation of approved automatic or manually operated protective devices.

Protection of buildings having wood exterior wall construction against exterior exposure from frame buildings, or storages of combustibles, is more of a problem. Both the N.B.F.U. and the N.F.P.A. admit a pronounced tendency on the part of building owners to disregard the serious probability of heavy loss in rows of closely spaced wood frame mercantile and other buildings, in many instances with air gaps too narrow for effective fire fighting operations.

[8]N.F.P.A. Handbook of Fire Protection, 11th ed.


# READ WHAT THE MEN WHO USE IT SAY ABOUT THE HALLIGAN TOOL

**FAMOUS 10 TOOLS IN 1**

*GEORGE E. HINK*
*Chief of Dept.*

## P.F.D. News

Published by and for the Philadelphia Fire Department

VOL. 3. NO. 17 — AUGUST 23, 1954

### HALLIGAN TOOL ADOPTED BY P.F.D.

Every Engine, Ladder, Rescue, Fireboat Company and the Fire Training School are now equipped with the "Halligan Tool," an improved form of claw-tool, invented by the New York Fire Department's Deputy Chief Hugh A. Halligan.

From now on, all purchases of new apparatus carry the specifications that "Halligan Tools" are to be part of the equipment, here in Philadelphia.

This 10 in 1, forcible entry, emergency demolition and overhauling tool is giving keen satisfaction to Philadelphia firefighters. Here is what some of them have to say: *Captain William Dorff—L. 5.* "I like it for knocking the locks out of glass doors. It's just the thing in tight places. Its light weight is a decided advantage when carrying it up a main ladder."

*Lieut. James Willard—L. 23.* "I like the Halligan Tool because it has been proven successful on many fire ground operations, especially in opening glass doors. It is easily handled in confined spaces, ideal for quick, forcible entry, easily carried on ladders and permits greater leverage. . I am proud to have it as part of the equipment we carry on Ladder Co. 23."

*Fireman Patrick Compton—L. 14.* "The Halligan Tool is handier, lighter and a welcome addition to the tools in the Philadelphia Fire Department."

*Captain Daniel Kelley—L. 19.* "I think it is a very good tool, especially for opening locks. To knock off the face of the lock with the chisel end . . . then use the point of the tool to drive the barrel through and open the door, is but a matter of seconds!"

Lieut. James Willard, L. 23, shown holding a "Halligan Tool" in front of L. 23 at Fire Headquarters.

*Lieut. John Jones—L. 24.* "It is very handy in tight quarters, such as a closet. It is not as long as a claw-tool and more maneuverable in close spaces."

*Fireman John Boyle—L. 18.* "I like the Halligan Tool because it is light in weight and easier to operate!"

Chief of Department George Hink stated that, "Great firefighter's duties are eased considerably by being furnished with the proper tools and equipment. The adoption of the "Halligan Tool" as standard Fire Dept. equipment is a decided step forward in the over-all efficiency of the P.F.D.

# PROOF ENOUGH? WE'VE GOT LOTS MORE FROM FIRE DEPTS. ALL OVER THE MAP!

***THE GREATEST FORCIBLE ENTRY TOOL—EVER—***

# ORDER NOW

***Give Your Men the Advantage of Faster Entry!***

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Group fires in these occupancies are common, authorities agree. And they suggest, by way of corrective measures, the following: Provision for free standing fire walls in available air gaps between buildings; the removal of obsolete structures and other severe hazards; remodeling of buildings to provide parapeted masonry walls; provision for fire-retardant coverings over wood exterior walls, or the installation of outside sprinklers.

**2. Built-in Detection, Alarm and Extinguishing Systems:** The automatic sprinkler system is one of the most valuable and universally adaptable appliances for both preventing fire spread to exposure internally and externally in a building; it is also the best known means of automatically extinguishing fires in their early stages, especially in commercial and industrial buildings. Sprinklers are the only adequate safeguard for such structural defects as large areas; unprotected vertical openings; excessive use of combustible material in the building structure or its contents—and/or the employment of hazardous productive operations.

Permanently installed exterior water curtains afford good protection for a building against exposure fires. There are several types, some of which not only protect windows and other openings, but the entire side of a building as well. One type consists of a sprinkler head extended to the outside and over each window. Heat coming from either inside or outside the building will fuse the link, permitting water to flow over the entire window opening.

Approved automatic fire detection systems, properly installed and monitored and so designed as to automatically transmit an alarm of fire, can greatly augment sprinkler systems and help reduce both fire spread and possible excessive use of water by getting protective forces on the ground with least delay.

**3. Efficient Fire Department Operations:** According to the N.F.P.A.[8] "Fire department protection and adequate water supply are actually the determining factors in controlling the great majority of exposure fires."

It is always the object and intent of all fire departments to prevent fire from extending beyond the scope it has gained before arrival of firemen. The extent to which fire forces are successful in confining a fire depend upon factors which have been thoroughly covered in other studies in this Journal. The main objective of course is to get quick extinguishment before the heat generated by the fire can be transmitted to exposed combustible material and cause the fire to spread.

Extinguishing success, however, is dependent upon such factors as the extent to which the fire has progressed; the rapidity of burning; the barriers to fire extension, and the ability of the available fire force and its facilities to win quick control and extinguishment.

Another element is the ability of the fire force to protect the combustible material (adjacent or adjoining buildings, building contents or outside storage) exposed to the heat generated by the original fire. Mechanical protection, such as built-in sprinkler systems previously mentioned, are not always present and this exposure protection is usually accomplished by the use of fire streams. Sometimes, too, fire streams are required to aid sprinkler protection.

It is not unusual for first-arriving firemen to devote their entire efforts to protecting exposures against advancing fire, or to cut off and prevent vertical or lateral extension of the blaze until additional apparatus and men arrive to attack the main body of fire itself.

Every experienced fire fighter has had occasion to make the quick decision whether to devote his efforts and available water to covering exposures or to utilize it in an attack on the fire itself. This is a difficult decision to make, particularly if lives may be at stake.

Many an excellent job of preventing extension of a fire has been made by rural and suburban fire fighters, where no water was available and the responding forces were forced to depend upon booster tanks and such improvised water carriers as could be mustered. Judicious use of booster lines with small amounts of water, well directed to wet down exposed combustibles, has saved many a farmhouse or other property exposed to threatening fire.

On the other hand, many fire departments are lacking in sufficient heavy duty equipment and appliances to make fullest use of water supplies that may be available, to protect exposures at a threatened conflagration. That is what often makes for conflagrations, or large-loss fires. Not only are most municipal fire departments today short on effective manpower, but they lack the ample reserves of large hose, monitor sets, and other equipment to put up adequate defense against advancing fire. This

**EASILY CARRIED BY TWO MEN**

When fire strikes, the fire location or water supply may be inaccessible to the truck pumper. QUICK ACTION of the GORMAN-RUPP DUAL FIRE FIGHTER will aid you in reducing fire losses.

The DUAL FIRE FIGHTER weighs only 162 pounds. Easily carried by two men, it has often brought fires quickly under control when the truck pumper was unavailable.

Used as a booster pump, or to fight fires direct, this light, portable pump starts throwing water in less than a minute. The unit requires little room on the pumper, but plays a big part in effective fire protection.

Proved a valuable and necessary piece of equipment, for any fire department, the small but mighty GORMAN-RUPP DUAL FIRE FIGHTER gets water to the fire . . . FAST!

DUAL FIRE FIGHTER PUMP MODEL 6201-FF

- **AS A BOOSTER.** Extends the range of your pumping truck. Will deliver 175 g.p.m. through 300 ft. of 2½ in. hose to the top of a hill 50 ft. high.
- **DIRECT PUMPING.** Highly mobile, the DUAL FIRE FIGHTER goes into action wherever needed — drawing water from lakes, streams, ponds. Will throw 100 g.p.m. at 80 lbs. or 80 g.p.m. at 88 lbs. pressure — capacity sufficient to supply two 1½ in. lines.

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situation could prove disastrous in the event of serious enemy atomic attack just as it proved costly in Europe and the Far East during World War II raids.

One safe conclusion that may be drawn is this: regardless of the size of the fire, or the exposure hazards, and regardless of the property or material involved in the fire, as well as the permanently installed fire protection facilities, the task of confining and extinguishing the exposure fire is one for the organized fire forces.

And finally, this thought: the fire fighter's dictum: First locate, then confine and extinguish the fire and prevent its rekindle, might well be revised to: First locate the fire, cover exposures, confine, extinguish and prevent rekindle.

## False Alarms by Phone

Ironically, two news items almost alongside each other in the Sept. 8, 1954, issue of the *New York Times* provide interest for those concerned with the controversy over substitution of the telephone for the orthodox fire alarm box.

The first item told how the United States continues its world superiority in the number of telephones in use, stressing the fact that "average daily use of the telephone in this country continues to increase."

The accompanying item was headed *"Hotel Alarms False—Reports of Woman on Ledge and Fire at Dixie Laid to Crank."*

According to this account "Nine police vehicles and five fire trucks converged last night on the Dixie Hotel . . . in answer to two anonymous phone calls that turned out to have been made by a crank."

The story told how a man phoned Police Headquarters at 8:19 P.M. and said that a woman was on a seventeenth floor ledge "threatening to jump." Two minutes later, apparently the same man phoned the Fire Department to report a fire in the hotel's bus terminal.

The police dispatched three emergency trucks and six radio cars to the hotel, in the very heart of the midtown Manhattan area. The Fire Department sent three engine and two ladder companies.

Investigation proved both reports untrue—but failed to disclose a clue to the perpetrator.

## August Fire Losses

Estimated fire losses in the United States during August amounted to $78,163,000, it was reported by the National Board of Fire Underwriters.

According to Lewis A. Vincent, NBFU's general manager, this $78,163,000 loss represents a decrease of 27.4 per cent from losses of $107,713,000 reported for August, 1953,* and an increase of 12.4 per cent over losses of $69,532,000 for July, 1954.

Losses for the first eight months of 1954 now total $603,685,000, a decrease of 1.8 per cent from the first eight months of 1953, when they amounted to $614,732,000.

These estimated insured losses include an allowance for uninsured and unreported losses.

*August, 1953, reflected fire losses at GM's Livonia, Mich., plant.

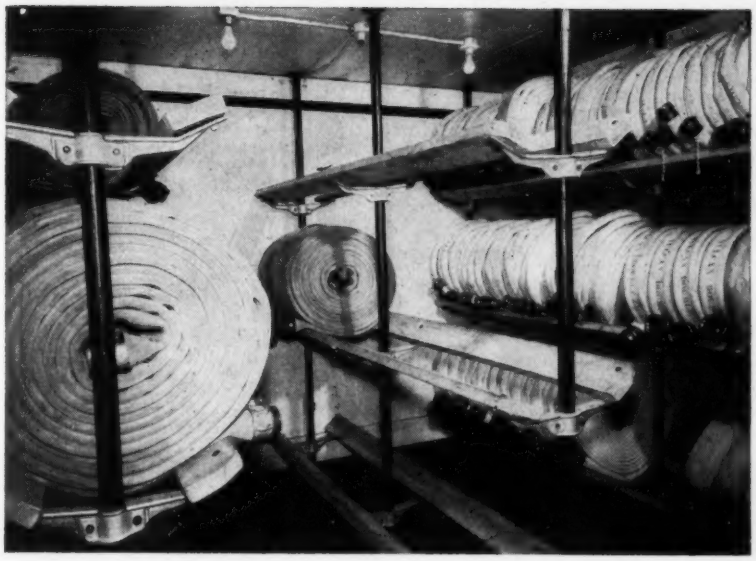
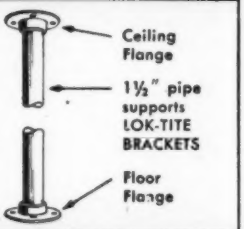



*Photo Courtesy Wichita Fire Station No. 1*

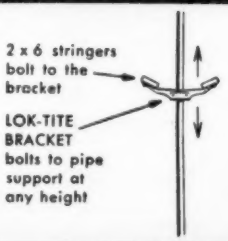
# The Solution to Hose Storage Problems

**FEATURES**

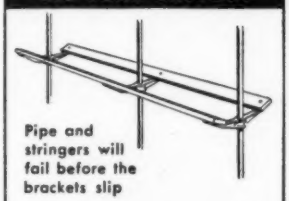
**SIMPLE INSTALLATION**



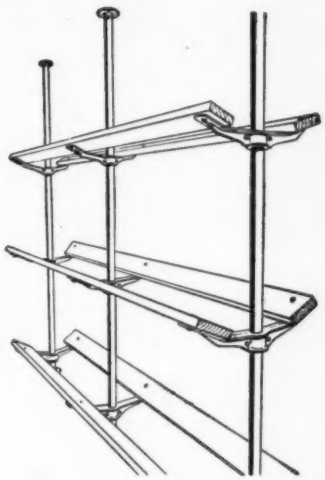

**EASY ADJUSTMENT**




**BIG LOAD SUPPORT**




Build Your Own Racks With Lok-Tite Brackets

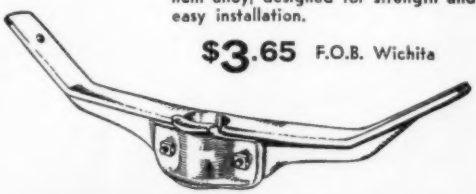


MIGHTY few station houses have all the room they need for good housekeeping. Lok-Tite brackets help solve the hose storage problem by allowing ample ventilation and access in limited storage space.

Build your own racks with new or used materials. Design your own storage to take full advantage of the space available. Have ample room for fittings inspection and ventilation.

Lok-Tite brackets, light weight aluminum alloy, designed for strength and easy installation.

**$3.65** F.O.B. Wichita



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## Among the Buffs

By Paul C. Ditzel

WHEN columnists begin to suspect they are writing to a stone wall, they sometimes bring the pot to boil with columns such as those in the past two issues of FIRE ENGINEERING. While I was able to get a few things aired in both columns—one on the shoddy political trick being perpetrated on Chief Engineer John H. Alderson of the Los Angeles Fire Department and the other on the lunatic fringe of buffs—I also seemed to have hit upon some tender spots.

Taking first things first, the column on Chief Alderson provoked a postal card from some courageous individual in the Philadelphia area who did not care to send along his return address. Its always easy to throw such stones while purposely remaining anonymous. That being the case, plus the fact that I threw the matter open for discussion in an earlier column, I'm sure my correspondent won't mind if I quote as closely as possible his scrawl. The following is his note in its entirety with nothing changed and I stress this—nothing changed:

"I read with great interest your article in this month (cq) "Fire Engineering" —first of all there never should have been seperate (cq) stations because of a man (cq) race or regelion (cq), an (cq) it has always been in the chief's Power to transfer man why didn't he do it without been ordered. An (cq) second: there will always be others to do just as good a job if he did quit. he should have made the transfers himself long ago. with him out may be the dept will advance. dont always look to the past but to a bright future from all the huge (following word unreadable) read about out there he dont seem to be doing such a good job at all."

Who was it that said: By their speech, so shall ye know them?

The purpose of this column is not to praise Chief Alderson. His record, unsurpassed anywhere in this man's or any man's fire service ever, speaks for itself. Any doubters need only check the National Board of Fire Underwriters' rating of Los Angeles, a top rating that Chief Alderson could never explain to an individual like this postal card writer, whose lack of information on the subject is too obvious to go into here.

As for my more recent column—the one on the "firemaniacs" at large among us—I'm particularly interested in the case of one legitimate firefan I had occasion to mention in this column recently. This buff, who wasn't afraid to identify himself, told of unhappy incidents which occurred after he was written up.

This buff, who enjoys the esteem and confidence of many of this country's top chiefs, says that his telephone was especially busy after the mention. Screwball buffs from Paducah to Pocatello telephoned him—COLLECT—to pass the time of day and generously offer to split commissions with him on the sale of fire equipment.

"I know a chief in East Moosejaw who's in the market for a new handpump. We're great pals and just a word from me would clinch the deal for you. What's the split for me?" was the gist of several calls.

Other firefans, who had what they thought ideal qualifications, called collect to ask this buff for a job. Most of these calls came through this gentleman's office switchboard where the operator thought they were legitimate orders coming in. Others went to this buff's home where his wife accepted the charges for the same reason. As a result, my friend now has an unlisted number, somewhat of an obstacle to him in his business.

"Publicity is fine for me," this buff says. "But not when I have to pay for it as the result of these calls from the lunatic fringe. Why is it that the buff who has pointlessly memorized the number of every firebox in his town thinks that he is a qualified expert and a hot prospect as a fire equipment salesman?"

Several other buffs have asked me to put in a word about other fans who cause great embarrassment and ridicule to fall upon their departments and the fire service in general by their willy nilly and obnoxious response and presence at fires.

A number of instances mentioned were the over-excited buffs who have wangled permission for lights and siren and who in turn abuse their privilege by responding under emergency conditions to every auto and trash basket fire within 10 miles. No wonder few chiefs want this type of buff cluttering up their stations or smearing the good reputation of their departments. Unfortunately this same brush tars the fellow who is genuinely interested in the fire service.

That's another long ring for now.


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Compare Notifier with any other fire detection equipment. You'll find nothing to equal Notifier's exclusive developments.

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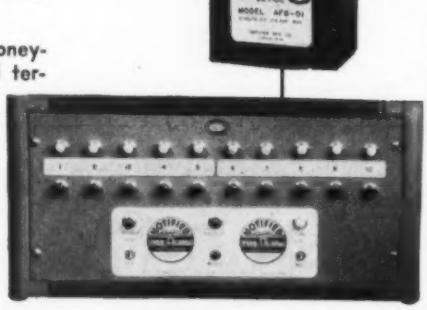
All these facts add up to fast, money-making sales for you in protected territories. We'll help you.



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This column will continue to be an open forum for any rebuttals to this or any other column of mine. Send 'em along to 419 Napoleon St., Playa del Rey. (P. S.: Thumbing through some letters recently received, I see plenty of burning ears when this column hits print. Especially the buff—or is he a pyro—who bemoans that there weren't any big fires in his town so he could gloat while entertaining a visiting buff. You always meet such interesting people. . . .)

## World Wide Fire News

By Roi B. Woolley

### Soviet Stresses Civilian Defense

If Pravda, organ of the Communist party, is any authority, the Soviet Government apparently has ordered a major expansion of civilian defense training.

A recent editorial in that paper declares the Soviet Union's civilian military training organization must give first priority to "training the entire population in contemporary techniques of defense against aircraft and chemical warfare."

This appears to be the first major public mention of such activity appearing in the Soviet press in recent years. Hitherto, the major emphasis in the work of the Voluntary Society for assistance to the Army, Air Force, and Fleet —known after its Russian initials as DOSAAF, has been on teaching Soviet civilians the rudiments of military skills such as rifle shooting, communications specialties, parachuting and the like.

Though DOSAAF is thought to have a membership of more than 10,000,000 persons among Soviet citizens, Pravda implies that recently the organization has given relatively little attention to needed civilian defense measures.

Communist journalists have sometimes made much of the contrast between the alleged confidence and lack of civil defense preparation in the Soviet Union, and the anti-aircraft alerts and other civil defense measures taken in this country and Western Europe. In view of Pravda's statement, any such contrast will be lessened or eliminated.

* * *

### A (Cracked) Theory on Saucers?

Comes Hermann Oberth, wartime V-2 rocket expert of Nurnberg, Germany, to say he is convinced the things called flying saucers are real and perhaps manned by the "Vikings from another planetary system."

"We cannot produce such 'saucers' yet, and we are fairly certain that the other planets of our solar system lack civilization capable of their manufacture," said Oberth.

"Thus one concludes that these flying objects are the exploring ships of another solar system, or even a far-off fixed star."

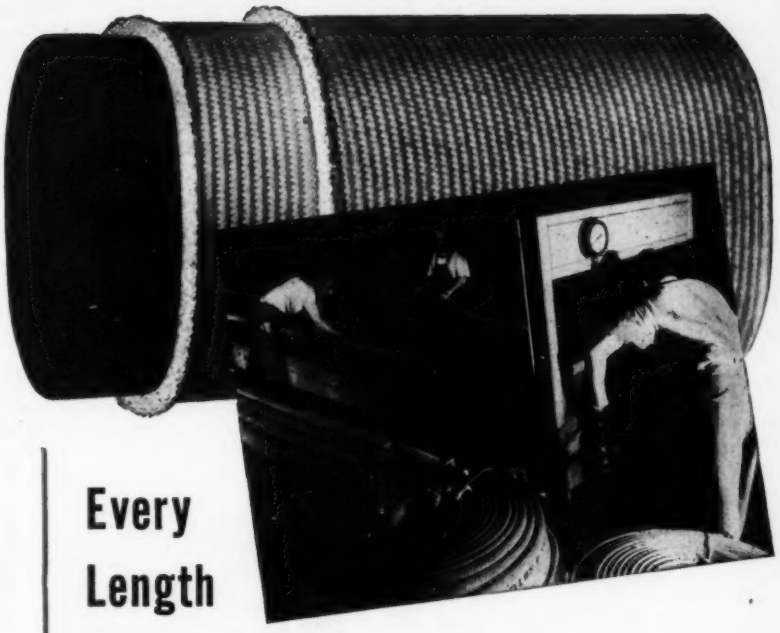
* * *

### Hot Mail?

From Fitchburg, Mass., comes the report that four letters were destroyed Aug. 6th, last when vandals dropped matches into a corner mail box.

An employe of the Post Office discovered the burned letters when he opened the box for a mail pickup. There were several burned matches in the box.

There was a bit more action in Man-

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DACRON FIRE HOSE

You're sure of top performance, wear and economy from this exceptional hose. Every length undergoes rigorous hydrostatic pressure tests before it leaves the factory . . . tests far more gruelling than the most severe use you can give it in action. Lightness and flexibility are assured by twin jackets of cotton warp thread with super-strong Dacron filler. Resists heat, chemicals, water absorption and abrasion. Requires less storage space, too. Available in 600 lb. test Delaware brand and 400 lb. test Bond brand. For extra safety and service, use Dacron hose—another Quaker quality product.

*Write for free folder and name of nearest distributor.*

Water and Chemical Fire Hose for Every Municipal and Industrial Need.

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hattan, however, when a fire in a mail box at the corner of 101st Street and Second Avenue drew a full assignment of apparatus, and crowds of the curious. Three engines, two ladder companies, with 25 men and officers responded, together with several top brass officers.

Firemen found only charred paper and ashes in the box. The findings were turned over to the postal authorities and the Fire Marshal's Office began an investigation, as did police and postal inspectors. A passer-by turned in the alarm.

* * *

**War Comes to Springfield, Mo.**

A taste of war came to the good folks of Springfield, Mo., on the night of August 24th, last, when a boxcar loaded with 105-millimeter shells caught fire in the Frisco Railroad yards, touching off a series of explosions and spraying the heavy artillery shells over a wide area.

Exploding shells hit one house, destroying it. Another was badly damaged when it was ignited by sparks, which also set fire to several other dwellings. Firemen had a busy time of it, reminiscent of the "Blitz" days of London during World War II.

No "direct casualties" were reported, but one man suffered a heart attack and a small girl was injured when hit on the head by plaster which was shaken from the ceiling of her home.

The fire in the car apparently was caused by a hot box. It was discovered just before the St. Louis-San Francisco Railway freight was to leave for St. Louis. The burning ammunition car was pulled away from three other freight cars, also loaded with ammunition, to an isolated section of the yards. Persons in the area were evacuated. All streets and roads for a mile around the scene were barricaded. The ensuing blasts could be heard in almost all parts of the city of 65,000. The flames were visible for several miles. Property damage was not disclosed.

* * *

**Fire Drill Fatal to Airman**

Three Davis-Monthan airmen were trapped in a sudden burst of flame during a routine fire drill at Tucson, Ariz., bringing death to one and serious burns to the others.

Announcement of the accident was delayed by the air force. The report, when released, said that an old airplane frame had been soaked with 100 gallons of oil. It was touched off. Two fire trucks moved in to quench the blaze. As one drove off, the fire suddenly broke out again and enveloped the truck and the men.

The second truck raced back and rescued the victims, two of whom were rushed to Brooks General Hospital, San Antonio, Tex., for special emergency treatment. There, one of the two died. The other injured airman-fire fighter is in Davis-Monthan hospital.

* * *

**It's Dynamite!**

Here are the sort of incidents that give fire fighters grey hairs.

CAMDEN, N. J.—Theft of 15 sticks of dynamite and 15 dynamite percussion caps from a workman's shack was investigated by police who began a city-wide search for the thieves. The caps alone were listed as "very dangerous" and capable of causing loss of life. . . . From the evidence police believe dynamite may have been taken by school children who were ignorant of its dangerous nature.

---

PHILADELPHIA, PA.—Six Kensington kids boasted how they chewed up dynamite and used it for spitballs. On an exploring trip in Pennypack Park they saw a quarry and a little house with an open window. They saw a long box filled with sticks and immediately unwrapped some of them. "They looked like putty" said one of the lads, "On the way home we hit each other with it, chewed it, and made spitballs. . . . We dropped a lot of it on the way home." And that worried the police. They believe the boys took 50 sticks. Only 19 were found.

---

CANTWELL, MO.—A concrete building filled with dynamite caps blew up, killing three teen-age boys who apparently set off the explosion by firing a 22 cal. rifle bullet down a ventilator pipe.

The boys' bodies were hurled hundreds of feet through the air. Building had 10-in. thick concrete walls, and blast blew chunks weighing 500 lbs. more than 200 feet.

---

HINTON, W. VA.—A 17-year-old school boy, nursing a grudge because he had been put off a school bus for "cutting up," was accused of wiring the bus with dynamite. The 38-year-old driver was seriously hurt when the dynamite went off. The lad confessed wiring two sticks of dynamite into the ignition system.

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NEW YORK, N. Y.—Complaint that a youth had experimented with dynamite by blasting in the basement of an apartment house led police to capture two youthful burglary suspects.


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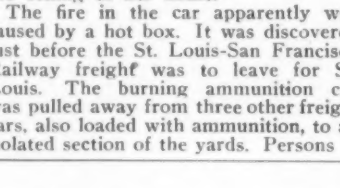


Use this fine safety film, "SAFE EXIT," in your safety program at school, plant or club meeting. Dramatically filmed and edited by the makers of VON DUPRIN Fire and Panic Exit Devices, "Safe Exit" is a public service film devoted to the promotion of safety education . . . and offered to you *absolutely free*. It is in no sense a product story.

"SAFE EXIT" is a 20-minute, 16 mm, black and white sound movie, ideal for use in any safety training program for children or adults or for informal luncheon club or PTA meetings.

It costs you nothing to show "SAFE EXIT"—not even postage! Just fill in and mail the booking coupon request below. Send it today . . . help promote safety all year long.

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YES, we wish to show the 16 mm, sound, B & W movie, "SAFE EXIT."

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We understand film is absolutely rent-free, postage paid. We agree to return film the day following our showing.

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Investigating the complaint, police found a box containing 85 sticks of dynamite, stored on a shelf behind hall stairs of the first floor of the building. Police nabbed an 18-year-old youth, who confessed stealing the explosives from a construction job. Another boy was later taken into custody when it was disclosed the two had worked four hours to crack a safe in a factory. They also admitted to mugging, carrying arms and burglar tools and some 50 burgiaries.

* * *

**Orchids to Aircrash Survivor**

The orchids of the month go to Miss Elizabeth Snyder, 25, of 116 East Seventy-third Street, Manhattan, N. Y., acclaimed by crew and passengers of the Dutch Airliner that crashed in the Shannon's muddy estuary Sept. 5 as instrumental in saving the lives of twenty-eight out of the total of fifty-six persons aboard the plane at the time of the disaster.

The plane's captain told how Miss Snyder prevented a terrific explosion which would have torn the craft to bits following the emergency landing, when she knocked a box of matches from the hands of a fellow passenger who was about to light a cigarette nervously as gasoline fumes poured into the cabin of the sinking plane.

"I think the twenty-eight who were saved, including myself, owe their lives to her," Captain Adrian Viruly told reporters.

The plane crashed in the River Shannon only a few miles from Shannon airport but it was nearly three hours before the airport authorities apparently knew of the tragedy. By that ume half of those aboard the craft, including the plucky stewardess Helga Loewenstein, a Netherlander who died at her post, had either drowned or suffocated from the fumes generated by the leaking fuel which permeated the space of the cabin not occupied by water.

* * *

**From the World News Ticker**

Fireman Koichi Hirano, 31 of Koga, Japan, confessed to police on July 20 that he won seven prizes during the last two years for arriving at the scene of the fire first. He set the fires. . . . An explosion Sept. 1 aboard the British Aircraft Carrier Eagle, undergoing repairs at a Davenport, Eng., dockyard, killed a naval officer and injured another man. Blast originated in the fuel tanks but damage to the carrier was reported negligible. . . . Over in Knaresborough, Eng., Harry Wharton, 50, decided a fitting finale, for the big water show on Sept. 6, would be burning of a 17-foot model of the Cunard liner Queen Mary. But his plans were sunk by the Cunard Steamship Co., which said that by "burning the effigy of anything, you show contempt for the original." So Brother Wharton guessed he'd have to be content with shooting Roman candles from the model's deck. . . . An Army crew recently exploded a Japanese balloon bomb dropped during World War II where it fell, in the mountains of northern British Columbia. . . . Six men were killed when a dynamite-laden barge exploded near Savannah, Ga., July 24 last. Blast ripped through barge as men were drilling holes and laying dynamite for a pipeline across the Tennessee River at Hamburg landing, south of the city. There was one survivor. . . . In historic old Charleston, S. C., progress


# When Seconds Count in Fire Warning

FYR-LARM "screams out" on immediate heat detection of fire. Gives employees warning for safety and protection of property.

This compact, low cost, wall hanging unit is **APPROVED BY THE UNDERWRITERS' LABORATORIES**

**Note these important features**

- ***No Installation Cost*** ***Insert screws and hang up.***
- ***No Maintenance Cost*** ***Merely weigh at 6 month intervals.***
- ***Lifetime guarantee—Any unit that operates due to fire replaced no charge*** ***Your first cost is your final cost.***

***Fully Automatic • No Wiring • No Batteries***

**INDUSTRIAL MODEL— ONLY $15.95 PER UNIT.**

**HOME MODEL $12.50 PER UNIT**

G. H. WOOD & CO., LTD. • TORONTO, CANADA

Exclusive Canadian Distributors

**FYR-LARM Company, Inc.**

243 BROAD ST., SUMMIT, N. J.

*for*
**POWER**
**PERFORMANCE**
*and* **PRICE...**

**TRIPPE**

**360° REVOLVING WARNING LIGHT**

True lighthouse principle. Super-powerful 100 c.p. bulb is FIXED. Reflector revolves around it casting an occulting flash in every direction that can be seen for blocks.

Heavily constructed for long trouble-free service • Die cast housing, triple chrome plated • Non-fading Tenite plastic dome and front lens • Silvered, parabolic, revolving mirror, motor driven. 14" overall length.

Uses the most powerful light source of any light of its type.

Priced to the Departments, only

**$39.50**

**ASK YOUR SUPPLIER TODAY**

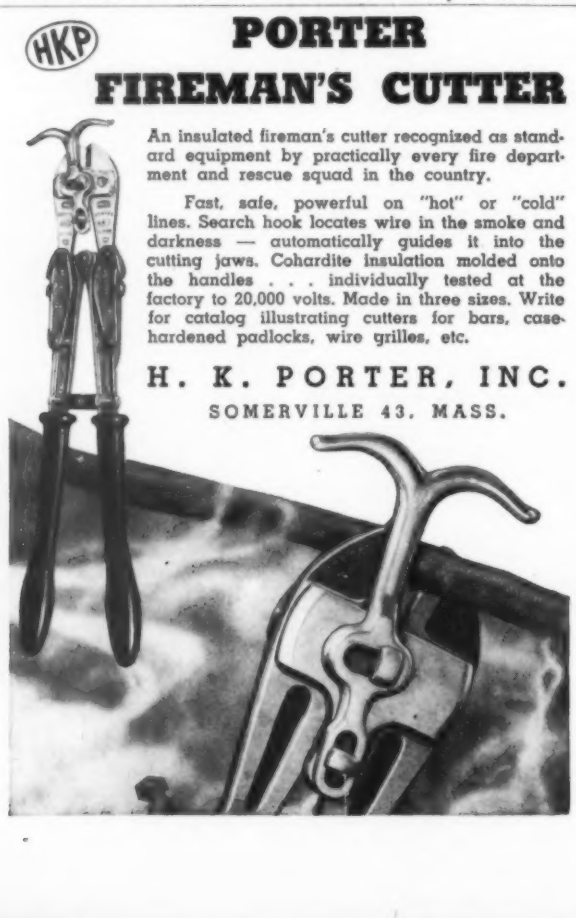
*or Write for Attractive Catalog on this and Other Lights*

**TRIPPE MFG. CO. • 218 N. JEFFERSON ST., CHICAGO 6, ILL.**

HKP

**PORTER**

**FIREMAN'S CUTTER**



An insulated fireman's cutter recognized as standard equipment by practically every fire department and rescue squad in the country.

Fast, safe, powerful on "hot" or "cold" lines. Search hook locates wire in the smoke and darkness — automatically guides it into the cutting jaws. Cohardite insulation molded onto the handles . . . individually tested at the factory to 20,000 volts. Made in three sizes. Write for catalog illustrating cutters for bars, case-hardened padlocks, wire grilles, etc.

**H. K. PORTER, INC.**

SOMERVILLE 43, MASS.


has been reported. The city's two fire bells have been replaced by three sirens. For more than 60 years the bells tolled fire warnings and were rung at the death of presidents, the approach of hurricanes, and the end of wars. . . . When officials of Harrisville, Mich., probed the ruins of the 89-year-old Harrisville Courthouse, destroyed by fire, they found all county records were burned, except those files belonging to the draft board. . . . At Fort Lauderdale, Fla., 500 sticks of dynamite aboard a truck exploded on Aug. 21, killing one man and injuring two others. . . . The Army has developed a new synthetic rubber—monochlorotrifluorethylene fluorocarbon elastomer. . . . From Toronto, Ont., comes this 'un: Where do old fire plugs go? Why to the dog kennel of course. That's where they're going in Toronto. The Humane Society there has taken over the city's used fire hydrants and installed them—minus any water connections—in its outdoor dog kennels. An official said the plugs are designed to "calm canine nerves." Oh no! . . . Three men were dragged from their crashed and burning plane the night of Aug. 16 only seconds before it exploded, near Hayward, Wis. . . . Fire on the night of Aug. 16, last, destroyed the historic Imperial Palace at Kyoto, Japan. Palace built for Emperor Komei in 1862 was total loss with its treasures. Officials said fire was started by sparks from a fireworks display. Flames spread from the bark-thatched roof. More than 10,000 persons watched 300 firemen batter in the closed Palace gate.

## Convention Dates

Oct. 18-21—INTERNATIONAL ASSOCATION OF FIRE CHIEFS. Annual meeting, Houston, Tex. Secretary-Treasurer, Chief Daniel B. Tierney, 8 Robbins Road, Arlington 74, Mass.

Oct. 19-20—INTERNATIONAL FIRE BUFF ASSOCIATES, INC. Annual meeting, Houston, Tex., during the I. A. F. C. Conference. Secretary, E. R. Damaschke, 916 West Marshall Avenue, Ferndale 20, Mich.

Oct. 19-22—FIRE ADMINISTRATION AND PERSONNEL, MANAGEMENT CONFERENCE FOR PAID AND VOLUNTEER FIRE OFFICERS, an 18-hour school with sessions from 4 to 6 P.M. and 7 to 9 P.M. School to be conducted by the Extension Division of the University of Wisconsin, Madison, Wis. Registration fee $6.00.

Oct. 22-24—NEW JERSEY STATE FIRE COLLEGE. Annual meeting, National Guard Training Center, Sea Girt, N. J. For reservations, contact New Jersey State Fire College, 24 Branford Place, Newark, N. J.

Oct. 30-31—American Association of Firemen. Annual meeting, Martins Ferry, Ohio. Secretary, W. D. Hogg, 1431 Parkview Dr., Lyndhurst 24, Ohio.

Nov. 9—EGYPTIAN FIRE FIGHTERS ASSOCIATION. Third Quarterly meeting, Murphysboro, Ill. Secretary, George H. Holmes, Carterville, Ill.

Nov. 13—KEYSTONE STATE FIRE CHIEFS ASSOCIATION. Annual meeting, Weldon, Pa. Secretary, Lewis M. Atkinson, Malvern, Pa.

Nov. 16-18—SYMPOSIUM ON FIRE FIGHTING, to be held at the U. S. Naval Civil Engineering Research and Evaluation Laboratory, Port Hueneme, Cal. Requests for further information should be directed to Officer in Charge, Code 794, U. S. Naval Civil Engineering Research and Evaluation Laboratory, Port Hueneme, Cal.

Dec. 9-10—ILLINOIS FIRE CHIEFS ASSOCIATION. Annual meeting, Rockford, Ill. Secretary, Chief Herbert Bush, Fire Department Headquarters, Centralia, Ill.

## Persons in the News

### J. P. Warwick Chief at Knoxville

James P. Warwick has been appointed Chief of the Knoxville, Tenn., Fire Department, succeeding the late Chief Calvin M. Johnson.

Chief Warwick was born in 1898, and is a veteran of 27 years in the Knoxville department.

Chief James P. Warwick

He was appointed a member of the department February 16, 1928; was promoted to captain, September 15, 1936; to assistant chief July 1, 1944, and to Chief August 11, 1954.

One of the Chief's sons, Paul Warwick, is following in his father's footsteps, and is a member of Engine Company No. 2 of the Knoxville Fire Department.

### Fire Chief Suddarth Honored

For the first time in its 38-year history, Chickasha, Okla., Kiwanis Club has named an honorary member. He's Fire Chief Luther "Bill" Suddarth.

The appointment was made for a period of a year in recognition of outstanding service to the community by a public servant. The work of Chief Suddarth in the city fire department, coupled with his service to local residents "beyond the call of duty" was cited in the announcement.

His life has been spent in public service, beginning as a substitute fireman in 1927. He became a regular "smoke-eater" in October, 1929. The appointment as chief came in March, 1951, after several years of service as assistant chief.

Since being appointed head of the fire department, Chief Suddarth has installed a continuing "in-service" training program to assure that all personnel will be thoroughly familiar with all phases of fire fighting and first aid.

In addition to the regular duties of the department, Chief Suddarth has formed a full-time first aid service which is available to all residents in emergencies.

Many lives have been saved as a result of the rapid action of first aid crewmen.

Another outstanding service to the community — for which the Kiwanis


IT'S NEW!

AFTER YEARS OF RESEARCH and DEVELOPMENT A NEW and PROVEN PATENTED PROCESS FIRE-SUIT

ALLOWS ITS WEARER TO REMAIN IN 2500°F HIGH HEAT & FLAME FOR EXTENDED PERIODS IN COMPLETE SAFETY!

NEW LIGHTWEIGHT

FYRE ARMOR

Fire resistant suits and protective equipment, developed after years of exhaustive research — now with a tried and proven record of performance abroad — is being made available here for the first time!

Under a patented process which fuses specially treated fire resistant fabrics to metallic layers and then topped by specially treated aluminum foil — Fyre Armor suits reflect more than 95% of all radiant heat. Under these high heat conditions temperatures beneath the suit remain at normal body temperature. Special copper coated heat resistant safety goggles and visors offer full 180° visibility.

Lightweight and supple Fyre Armor suits for flash entry, flame proximity and industrial use weigh a mere 4 to 10 lbs. — as much as an ordinary suit of wear — in a variety of models. This allows the wearer complete mobility and freedom of action.

At absolutely no cost! Fyre Armor safety engineers will survey your own safety need and requirements. Write us for full information regarding this service.

FAR-EX CORPORATION
75 WEST STREET, NEW YORK 6, N. Y.
Whitehall 3-5038

honor was awarded—actually began many years ago.

It started with an intense love of boats and water. "Bill" grew up with boats along the Tennessee River and for a few years did nothing but work with them. After he joined the fire department, he built a boat which has served well in rescue operations.

In May, 1945, the Washita River rumbled out of banks. Thirteen people were marooned on an island near Public Service Co. dam southeast of town. Chief Suddarth and his boat were called in. All 13 were safely removed, including some who were ill.

Two years later, in May, 1947, a bus carrying 27 persons was stranded on U.S. 81 at the Little Washita bridge south of Chickasha. Again, he and his boat were hastily called.

Earlier, in 1941, the Canadian River reached flood stage near Minco and six men were marooned on a small island in the middle of a bottomland farm. Suddarth, Fire Chief Frank Dews and Paul Rider, another fireman, answered the emergency calls. The rescue was completed in pitch blackness over the rain-swept, swirling river water.

Minco businessmen officially expressed appreciation to the local fireman.

On May 19 and May 20, 1949, when the Washita again surged free, the Suddarth boat again became a rescue craft, saving two stranded farm families and two soldiers who had attempted to cross an inundated bridge.

And there was that time in 1951, when two men clinging to the top of a water-covered cattle truck looked up to see the Suddarth boat chugging toward them. This again was on U.S. 81 near the Little Washita bridge.

Three days later, a man who had been clinging to the bridge for five hours was pulled from the water in the same spot.

These are some of the reasons why the Kiwanians named Chief Suddarth as their honorary member for outstanding service.

## J. T. Dineen, Chief at Lawrence

John T. Dineen was recently appointed Chief of the Lawrence, Mass., Fire Department. He replaced former Chief E. A. Retelle, who retired earlier in the year.

The new chief was born in Lawrence on February 3, 1896. He was appointed a permanent fireman on September 20, 1922, and his original assignment then was Ladder 2, now out of existence. He was promoted to lieutenant on February 11, 1940, and assigned to Engine 9. On November 12, 1944, he was promoted to captain and assigned to Engine 2 and he was elevated to deputy fire chief on July 27, 1947. He has performed fire inspection and drillmaster duties in the department and has also been assigned to Ladder 1 and 5. On July 31, 1947, he received a commendation for a rescue he effected while a captain.

During 1953, he served as acting fire chief for several monthly periods in line with a rotation system installed then by former Alderman William J. Casey.

## W. G. Labes Appointed Fire Instructor

Willis G. Labes has been appointed associate professor of fire protection and safety engineering at Illinois Institute of Technology, Chicago, it was announced by President John T. Rettaliata.

Labes had been an assistant professor in the fire protection and safety engineering department on a part-time basis since 1946.

A 1938 graduate of Illinois Tech, Labes was a member of the engineering department of the Factory Insurance Association prior to joining the IIT faculty. He served two years in the U.S. Navy during World War II with the rank of lieutenant junior grade.

Labes became affiliated with Armour Research Foundation of Illinois Tech in 1952 as a research engineer.

## R. C. Dennett Honored

Robert C. Dennett, engineering consultant of the National Board of Fire Underwriters, was honored October 1 at a dinner in the Hotel Commodore, New York City, marking his retirement after 50 years of continuous service.

Only once before has a golden anniversary been achieved by a staff member of the National Board. The member, Wilbur E. Mallalieu, general manager, retired on December 31, 1950.

Mr. Dennett, who joined the National Board on October 1, 1904, soon after graduation from Cornell University, was a field engineer 15 years, office engineer 25 years, and assistant chief engineer 10 years.

Early in his career he surveyed the water supply systems of 150 major cities, including New York, Philadelphia,

VERSATILITY
QUALITY
TOP PERFORMANCE

YOUNG custom-built fire apparatus embodies the finest in materials and workmanship, symbolizing the meaning of truly modern equipment. Pumpers have water-tight compartments of 60 cubic foot capacity . . . box type doors . . . slam locks . . . automatic lights. Hale pumps featuring push button prime and operation of the transfer valves . . . high pressure third stage . . . a low pressure line off the first stage . . . a 400 PSI line off the second stage. Yes, three different pressures at the same time . . . from the same pump! These features indicate the progressive thinking which YOUNG embody in their equipment.

If quality and top performance is what you want, then remember the name YOUNG.

YOUNG FIRE EQUIPMENT CORPORATION
1548 WILLIAM STREET, BUFFALO 6, NEW YORK

MEMBER OF F. A. M. (FIRE APPARATUS MANUFACTURERS ASSOCIATION)

Boston, San Francisco, Los Angeles, and Seattle.

During World War I and II he was a dollar-a-year man on loan to the Government, first as head of the fire protection section of the Emergency Fleet Corp. which had taken over the operation of 250 shipyards and outfitting plants during World War I, and later, in World War II, as advisory engineer in charge of fire protection for the Navy's Bureau of Yards and Docks.

## Westchester County Volunteers Elect Reader as New Head

The 157 fire companies of Westchester County, N. Y., forming the Westchester County Volunteer Firemen's Association, re-elected Louis M. Reader of Dobbs Ferry for a second term as head of the organization. The elections were held at the first annual meeting of the organization in Verplanck, Sept. 3-4.

Other officers are: Jack Cattell, Hastings-on-Hudson, first vice-president; William A. Magee, Briarcliffe Manor, second vice-president; Edward N. Coogan, Pelham, recording secretary; Arthur D. Thomas, Rye, financial secretary; Charles Jahne, Pleasantville, treasurer; Cornelius Falch, Rye, sergeant-at-arms.

The convention was climaxed by a parade on the 5th, participated in by 21 Westchester County and one Putnam County fire departments, 1,800 men and 28 pieces of fire apparatus in the line. Twenty-one bands furnished music over the two mile route in Verplanck, whose own volunteer department celebrated its Silver Jubilee and was also host to the visitors.

## New N.B.F.U. Film

On September 30, about 100 representatives of the press, radio and television saw a preview of a new sound-film, "Before They Happen," produced by the National Board of Fire Underwriters. The showing, timed to tie in with the 35th annual observance of Fire Prevention Week which began October 3, was sponsored jointly by the National Board and the New York Board of Fire Underwriters. It was shown in RCA's Johnny Victor Theatre in New York City.

While the film deals with the activities of a typical fire department inspection bureau—that of Hartford, Conn.—and depicts a day's work there in the life of Fire Marshal George Kennedy, its chief, it emphasizes the fact that a fireman's devotion to duty often saves lives and often, too, prevents disasters from happening.

"Before They Happen" had its inspiration in a previous National Board fire prevention film, "Crimes of Carelessness," and was developed as a result of numerous requests by fire chiefs for a film that would effectively relate the work of fire department fire prevention activities to the fire safety of the homeowner.

The National Board is now featuring "Before They Happen" as a successor film to "Crimes of Carelessness" in its film library. The library contains 26 other films all available for free public use on request to the Bureau of Communication Research, Inc., 13 East 37th St., New York 16, N. Y. For a listing of the films, write to the public relations department of the National Board of Fire Underwriters, 85 John St., New York 38, N. Y.

# X MARKS THE SPOT IN PHILADELPHIA

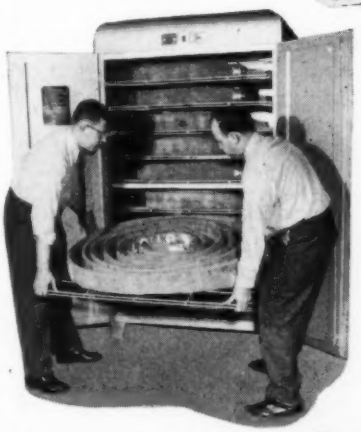
**ONE BASIC DESIGN RECOMMENDED**

**Chief George Hink of Philadelphia says: "Considerable amount of research and study of modern fire station standards before launching our extensive building program has convinced us that hose towers should be replaced with new type electric hose dryers. Not only will this effect tremendous savings, but will also promote higher efficiency, easy access to equipment, simplified maintenance, and better utilization of space. Our results with electric hose dryers have been very satisfactory."**

**Circul-Air will provide you, too, with better hose drying with less work, less man-power, less investment. It is the preferred drying medium in over 70% of new fire structures in the United States and Canada for the past 10 years.**

**"Electric Hose Dryers Have Proven Very Satisfactory"**

CHIEF GEO. E. HINK
Philadelphia



**Circul-Air is the patented electrically operated hose dryer, which circulates prewarmed fresh air through loosely coiled hose at the rate of 5 to 6 air changes per minute. Saves floor space, hard work and lengthens hose life!**

**No other method is so fast—so economical—so easy to use. If *you* haven't enjoyed the benefits of Circul-Air, we suggest you investigate its merits now—write for catalog and Hose Drying Manual.**

**THESE TOWNS . . . AND 3000 OTHERS PROTECT THEIR HOSE WITH CIRCUL-AIR**

**Atlanta . Akron . Allentown . Augusta . Boston . Birmingham . Binghampton . Cincinnati . Cleveland . Columbus . Chicago . Dayton . Detroit . Erie . Fort Smith . Flint . Galveston . Houston . Ithaca . Jacksonville . Kalamazoo . Kansas City . Louisville . Lafayette . Memphis . Milwaukee . Miami . Monroe (La., Mich.) . Montreal . Niagara Falls . New Haven . New Britain . New Orleans . Nashville . Oklahoma City . Omaha . Philadelphia . Providence . Pensacola . Rochester . Seattle . Savannah . Springfield . Shreveport . Toledo . Topeka . Utica . Washington . Wheeling . Winnipeg . Youngstown**

LABORATORIES APPROVED

**ACCEPTED • APPROVED • RECOMMENDED**

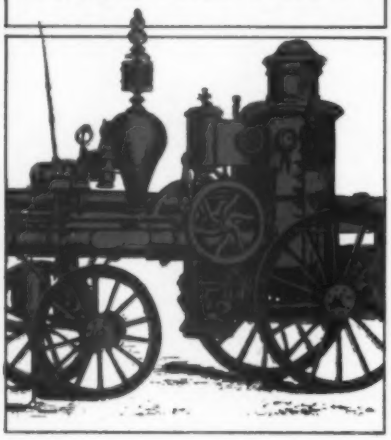
***Accepted*** **as the preferred drying medium in most of America's largest fire departments . . . *Approved* by leading testing laboratories, including Underwriters' Laboratories . . . and Canadian Standards Association. Recommended by fire hose manufacturers and Fire Chiefs "all over America and Canada."**

***If you are planning to build—or remodel—or need more room in your present quarters—send for our latest issue "Fire Station Design". Volume 4.***

THE CIRCUL-AIR CORPORATION

**575 EAST MILWAUKEE DETROIT 2, MICHIGAN**

**WOULD YOU BUY A RIG LIKE THIS?**



No up-to-date department would use an obsolete wagon like this, yet many are still using old-time fire helmets. There's as much difference between *new* Bullard Fiberglas helmets and others as there is between the above rig and the trucks you use today. Fiberglas helmets surpass all standard drop and dielectric tests, yet are lighter—more comfortable to wear. Test them yourself. Discover why more and more modern departments are switching to Bullard Fiberglas fire helmets. Your choice of permanent molded-in colors.

SINCE 1898

**E. D. BULLARD COMPANY**

DISTRIBUTORS THE WORLD OVER

275 Eighth Street, San Francisco, California

Bullard Universal Gas Mask with SMOKE EATER cannister

Approved respiratory protection in atmospheres containing 16% or more oxygen. Special filter gives protection against toxic fumes, dusts, mists, fogs and smokes.


# Short Cuts and Gadgets

## EXHAUST PIPE PROTECTION FOR FOREST AND FIELD FIRE FIGHTERS

Under given conditions, exhaust pipes of trucks may reach surface temperatures of 1,200 deg. F., which is sufficiently high to ignite grass or similar vegetation which might come in contact with the pipe. A simple and quite popular method for eliminating this possibility of fire is to change the standard exhaust line so that it enters a vertical pipe or riser mounted on the rear of the cab, the top of the exhaust being slightly higher than the roof of the cab. A length of 8 to 10 in. irrigation or similar sheet metal pipe is slipped over the vertical section of the exhaust line to permit air circulation between the exhaust pipe and shielding tube. The shielding pipe seldom reaches temperatures which are uncomfortably hot to the hand.

This type of termination of the exhaust is best from the standpoint of safety since ejected carbon must travel the maximum distance through air, partially cooling it before reaching ground. An exhaust line placed in the vertical position is not a substitute for a spark arrester but it does keep the line clear of contact with vegetation and the possibilities of fires through contact. The tractor spark arrester is an ideal unit for vertical mounting on all types and sizes of automobile engines.

*(From Forester Fire Protection News, July, 1944)*

* * *

## PRACTICAL TRAINING AID

In the July, 1954, issue of FIRE ENGINEERING there was published an interesting article by Charles A. Key, Specialist in Property Protection, Tennessee Valley Authority, entitled "Low Cost Training and Rating in TVA Fire Suppression."

The author dwelt at length on the wisdom of practical field training and showed how at TVA this could be accomplished without having to purchase or build elaborate, costly training facilities such as deep pits and tanks.

In his article, Mr. Key referred to a substitute for the old style field pits, devised by a fire fighter at the Kingston Steam Plant.

This consisted of 55-gallon oil drums split lengthwise, after which the halves could be laid end to end in a rectangle, partially filled with water and an inch or two of oil or gasoline, which then could be ignited to make interesting training fires.

The same half-drums could be made into double or triple-deck affairs by adding angle-iron legs.

In the article we failed to show pictures of these improvised gadgets—an omission which is now rectified. Herewith the picture of the units "at work." And further thanks to Brother Key.

* * *

## RELIEF VALVE "RELIEVES" RELAY

Too often in our relay operations we have had the unpleasant experience of hose bursting at the most inopportune times. In by far the majority of cases this was due not to hose defects nor normal operating pressure exceeding a safe figure (hose annually tested at 200 lbs.) but due to intermittent pressure surges in the lines when nozzles were shut off. This was particularly true where more than two pumpers were used in the layout.

As is the case of many other departments, we have for some years past leaned towards the installation of relief valves for controlling devices, even on centrifugal pumpers. Although they seem to have stood the test of time better than governors and are a greater asset in most drafting and hydrant operations, relief valves have certain inherent limitations in relaying operations. They, of course, do not affect motor speed but merely keep the pumper from exceeding a set pressure (when lines are shut down) by bypassing water from the discharge side back to the suction side of the fire pumps, thereby keeping the load on the motor and preventing its speed-up with resultant increase in pump speed and pump pressure. This bypassing action has the same effect as if the discharge were constant. If nozzles could be kept open continuously or somehow

Improvised "pit" for oil fire fighting demonstrations.

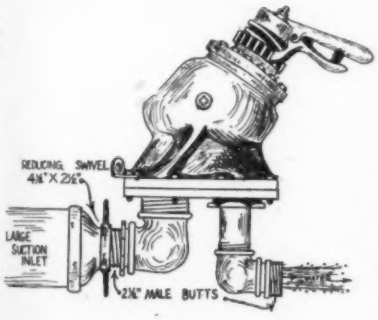
water constantly discharged from the lead pumper, we would not have this problem, but such is not always practicable nor feasible.

It is characteristic of centrifugal pumpers to take full advantage of the pressure at which water is delivered to them and for the discharge pressures to be increased accordingly. Unless properly controlled, such build-up is inevitable when water ceases to flow if any single unit in the layout is equipped with a relief valve or governor which is: (a) not in operative condition, (b) not properly set, (c) slow in functioning.

It has been found that many relief valves have their settings affected by variations in intake pressure. Also there is always a momentary surge of pressure until the spring tension in the pilot valve is overcome and water under pressure pockets behind the head of the piston of the relief valve proper.

Generally speaking, the relaying of water is a devious and complicated operation with pumpers frequently out of sight and sometimes out of touch with one another. There is frequent "jockeying" with throttles and relief valve settings with quite a time interval before things are properly balanced throughout the relay set-up.

Because of the foregoing operating difficulties in relay work, our Supervising Engineer's Staff recently devised a novel method by which water could be kept flowing in a relay stretch, by converting a Ross Relief-Valve from an older pumper into an "External Dump Valve," set to operate when nozzles are shut off and pressure on the intake side builds up as a consequence thereof.




As shown, the head of the relief-valve proper is attached to a flange with a 3" intake and a 2" discharge pipe, both of which are fitted with adapters threaded for 2½" hose. The discharge pipe, however, instead of returning the water to the suction side of the pumper, dumps it to the ground near the pumper. If this is undesirable, a 50-ft. length of 2½" hose can be attached to carry it to a distant point. The threaded feed pipe is connected to an unused suction inlet of the lead pumper by means of a 4½" by 2½" double female fitting. When first installed and until pressures are balanced throughout the relay, the valve is set at a figure high enough to prevent its operation. Then, when water is flowing from the nozzles, the setting is gradually lowered until the intake pressure overcomes the setting of the valve and water is dumped to the ground. The setting is then raised 20-30 lbs. above this figure and locked by means of a key. Water then ceases to dump to the ground until pressure on the suction side rises as will occur when nozzles are shut


The New Carpenter
WIG-WAG REDHEAD
FOR FIRE, POLICE AND EMERGENCY CARS AND TRUCKS, AIRPLANES . . .

The oscillating beam of this powerful, flashing WARNING LIGHT
CLEARS THE WAY . . . and fast!
Range of 1000-1500 feet and a sweep from side to side
FAR, FAR AHEAD
WARNS CARS APPROACHING AROUND INTERSECTIONS

**TYPE WW6 (Illustrated).** Flashing and Oscillating—6" diameter. Also Oscillating only, 6" diameter.
**TYPE WW8.** Flashing and Oscillating, 8" diameter. Oscillating only, 8" diam.
**TYPE 166.** Same as above. Flashing but without Oscillator. 3800 foot range. 6" diameter.
**TYPE 168.** Same as 166. 8" diameter and 4500 foot range.
**TYPE F'N'A** (Fore'N'Aft). Like 166 except drum shaped with two reflectors and two colored lenses, one facing forward and one toward rear, flashing.
6 volt units will be shipped unless 12 volt specified. Specify other color if red is not wanted.

**Type F-5 High Power Portalite**

Finest Dry-Battery Light made. Clamps on 7½ volt dry battery pack. Moderate worklight for 24 consecutive hours or a powerful mile-range searchlight for 8-10 hours (much longer if used intermittently). Also available with rugged cast aluminum case for battery in Duro-Satin finish (Type BF-5).

**Type RAD Red 360° Automotive Flashing Unit**

Closed top fresnel lens—Brilliant 50 candle power unit protects your equipment in all directions—even when parked at an angle—high quality "Sim-Chrome" aluminum castings—absolutely rust-proof. Built to last. Furnished complete with push-and-pull dash type switch and flasher. Furnished with bolt mounting or with metal screw mounting when requested.

CARPENTER MANUFACTURING COMPANY
200 MASTER-LIGHT BLDG. BOSTON—45—SOMERVILLE, MASS.
"Master-Light Makers for 34 Years"



GIVE THEM AUTHORITY WITH EMBLEMS

Firemen trophies all sizes and prices. Write for trophy catalog. Give particulars when possible for personalized service.

For volunteer fire brigade member. 1¼" diameter, hard glazed enamel, heavily gold plated pin and safety catch. $10.50 dozen. (plus F.E.T.)
Also available Captain, Chief, Ass't. Chief.

Special emblems to order. Write for *Industrial* catalog.

WILLIAMS JEWELRY & MFG. CO.
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off. When nozzles are again opened, the intake pressure drops and valve closes. With this device the relief-valves or governors can be cut out on all but the lead pumper in the relay. The valve could also be used on a discharge-gate employing a 2½" by 2½" double female coupling but not only would this give us one less outlet for our lines but the valve itself is more sensitive at lower pressures such as we have on the suction side.

A practical demonstration of the efficiency of the valve was recently given before top officials of the department at New York's Idlewild Airport, in a six-pumper relay laying over a mile of hose. As a result, one of these valves has been made by the N.Y.F.D. Shops for Idlewild and another for La Guardia Airports, at both of which relaying is a frequent operation. A third valve is carried by the staff of the Supervising Engineer, which covers all major alarms and unusual operations in this city—particularly the relaying of water.

*(Submitted by Lt. Thomas Ryan, Asst. Supervising Engr., N.Y.F.D.)*

* * *

## FOR BALKY STANDPIPE CONNECTIONS

Often engine companies connecting hose lines to standpipe or sprinkler siamese connections are confronted with the problem of swivels on these connections that won't turn.

This is due to the fact they they are constantly exposed to the elements and some building superintendents don't give them the attention they deserve.

This can be overcome in either of two ways:

1. Stretch the hose so that the female end is taken to the siamese. Place a double male into the defective swivel, and connect the female butt of the hose to the other side of the double male. A double female is then used on the pumper outlet.

2. Stretch the male end of the hose line to the siamese. Connect the double male to the defective swivel; connect a double female to the double male and then connect the male butt of the hose to the double female.

WILLIAM E. CLARK.
Captain Eng. 243, NYFD

## Firemen Injured at Forest Blaze

Four Los Angeles County firemen were injured, two seriously, while fighting a forest fire in the San Gabriel Mountains north of Pasadena.

Lawrence Lee, 30 and Daniel D. Cox, 27, both were rushed to Physicians and Surgeons Hospital, Glendale, with severe burns. Lee is still hospitalized with third degree burns of the face and hands, while Cox is recovering at home from first and second degree burns of the legs and arms.

Engineer Robert Cox, 32 and Fireman Leonard Lippert, also were treated for eye injuries.

All four men are from Engine 82 and were injured when a gust of wind swept flames toward them.

The fire, which burned 100 acres of the beautiful Charleton Flats Recreation area, was started by a careless camper.

More than 200 men from L. A. County and the U. S. Forest Service and 20 pieces of heavy equipment were used to control the blaze.—CLIFF DEKTAR.

## Tasks for the Fire Service

(*Continued from page* 891)

ricular tasks, and considerable apparatus and other equipment has been damaged. In the volunteer field, in some areas, they are not protected by liability compensation against injuries to personnel or apparatus, and to employ them in this fashion may lay the fire department open to suit.

5. Fire department appropriations are being pared to the limit in many cities; this failure to appropriate funds for personnel and equipment, to properly cope with these special services in the face of increasing demands upon the fire department, hardly makes sense.

6. Many fire departments are attempting to handle these "off-beat" tasks with men unskilled in the fundamentals needed to do an efficient job. And while efficient extra-curricular work has much good-will value, the bungled job can produce just the reverse reaction. Many chiefs believe the fire service should receive more specialized training in these special services.

## Southeastern Chiefs Stage Successful Conference

A total of 241 registered for the 26th Annual Conference of the Southestern Association of Fire Chiefs, held at Charlotte, N.C., June 7-10. Termed by many as "the best meeting we've ever had," the convention broke all previous attendance records.

Activities for the convention included a well-balanced program of instruction and entertainment, and included an unrehearsed multi-alarm fire which burned Charlotte's armory-auditorium to the ground. Unfortunately, however, the armory fire occurred in the before-dawn hours of June 8 when the majority of the chiefs were asleep in their rooms at the Hotel Charlotte. It was reported that only one of the visiting firemen arose for the costly spectacle.

Chief Troy O. Richardson
First Vice-President

Host Chief for the conference was Donald S. Charles, of the Charlotte department, who was also the retiring president of the organization. During the course of the meeting, Chief Charles was roundly applauded for the excellent job he had done as president of the association during the past year.

Besides the reports by Chief Charles


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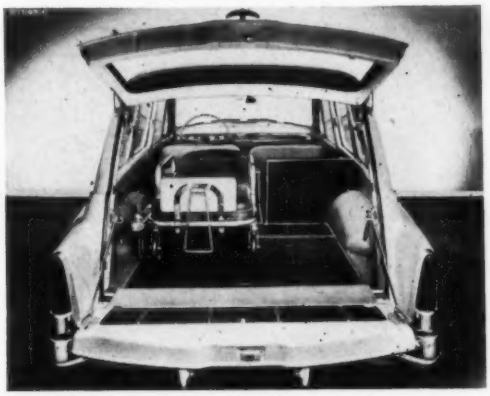

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and others among the association's officers and committeemen, the conference agenda featured such speakers as John G. Gerletti, general manager of the International Association of Fire Chiefs; Dr. B. J. Barrodale, secretary of Louisiana State Firemen's Association, and the Southwestern Association of Fire Chiefs, Houma, La.; Former Chief Henry R. Chase, of Miami, Fla., director to the International Association of Fire Chiefs; Dale K. Auck, fire prevention engineer for the Federation of Fire Insurance Companies, Chicago, Ill.; Wayne E. Swanson, fire chief, Rockford, Ill.; and Kyle P. Laughlin, Federal Civil Defense Administration, Washington, D.C.

To succeed Chief Charles as president of the association, members elected Chief Earl R. McDaniel, Lexington, Ky. Named to serve with Chief McDaniel were Chief Troy O. Richardson, Oak Ridge, Tenn.; Chief C. W. Wyrick, Greensboro, N.C., second vice-president; Chief G. A. Mitchell, Opelika, Ala., secretary-treasurer; and Ex-Chief Henry Chase, Miami, Florida, director to the International Association of Fire Chiefs.

John D. Gerletti, in his talk, reviewed some observations he has made during the short period that he has been general manager for the International Association. First, he said that he believes that the fire chief is the key to the success or failure of the fire department. Second, he said that he has observed that almost every decision affecting the department is made outside the fire department. Third, the general manager believes that the reason for this is the standard stereotype that the average person has about the fire chief—that he is a fireman, not the sort of man to be brought in on decision making.

Mr. Gerletti's fourth point was that the job of the chief has changed radically during the last 20 to 25 years, for the better in terms of its importance, but that the training for the job has not changed. The job is no longer that of just a good fire fighter, the general manager brought out, but that of an administrator and public relations expert.

Sixth point brought out Mr. Gerletti is that the fire problem is no longer local. It is national. "That is why we have an International Association of Fire Chiefs," he said.

The main reason that chiefs have not been chosen on decision-making committees more often, Dr. Gerletti said, is that so often they have turned down opportunities to serve in those capacities in the past. This is not entirely their fault, he said, since so often the fire department does not have the money necessary to finance sending its chief to a policy or decision-making meeting. The International Association of Fire Chiefs, Mr. Gerletti promised, is seeing to it that from now on the fire chiefs get chosen on committees, and get backing from their cities to enable them to show up at the meetings and participate.

**Chief C. W. Wyrick**
**Second Vice-President**

Mr. Gerletti emphasized the need for good public relations in the fire service. As an excellent step toward cordial relations with the public, he pointed to the home fire inspection programs carried on by departments in New York City and the State of Oregon. In these house-to-house searches for fire hazards, firemen and volunteer firemen have built up considerable prestige and good will for themselves in the minds of the public. The large majority of residents are not only willing but glad to have firemen make such inspections of their homes and make suggestions for added fire safety.

Dr. Barrodale, second speaker on the program, a dentist by profession who is also a veteran fire fighter, told the firemen that, "of all the city organizations, the fire department is, or should be, nearest to and best liked by the public."

Dr. Barrodale went on to say, "Every fireman, from chief to recruit, is a representative of the department—and as far as his community is concerned, its safety

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his major concern. He must be courteous, friendly, and obliging at all times. No department, volunteer or paid, can afford to be independent of the public. It is to the public it must look for continued existence."

Third scheduled speaker on the program was Ex-Chief Henry R. Chase, who, because of the limitations of time, spoke briefly. He called for a program of fire prevention and public relations, starting with education in the public schools.

Another speaker was Dale K. Auck who delivered a very timely and interesting paper on plastics. Pointing out a chief plastics hazard, Mr. Auck said: "When chemicals are mixed, heated, formed or ground into powder to form a plastic mix, one chief hazard must be kept in mind—the dust of most plastics are explosive when they are suspended in air. Special precautions must therefore be taken whenever the dust hazard is present. This means exceptionally good housekeeping everywhere; it means excellent ventilation of plastic producing equipments, explosion venting windows in buildings, cyclone dust collectors, explosion-proof wiring and fixtures, elimination of all flame sources, no smoking, and the like.

In his talk, Chief Wayne E. Swanson told the Southeastern chiefs that, " 'Selling' is one word that we are going to have to inject into our training manuals. Today you must tell people about the fire department; you've got to blow your own horn. How do you suppose the F.B.I. and the Marine Corps are so favorably thought of? It's because they trained, and then publicized their activities to the hill top. They have created the thought in our minds that we just couldn't exist without them."

A paper concerning "Problems of Fire From Modern Warfare" was delivered by Kyle P. Laughlin. Mr. Laughlin said that in the event of an enemy atomic attack "If you are not involved with fires yourself you must be prepared to help the communities that are. A complete organization of mutual aid assistance across the country is imperative if we are going to do the best job possible in controlling the fires that will result from enemy attack.

"By good fire prevention measures, by clean-up of junk and rubbish to a degree never before contemplated, by the training of people in homes in the extinguishment of small fires started by these kindling materials, and by the organization of fire services for mutual aid and mobile support in which all equipment and personnel will be put to the best use, we will have done the best we can, and will have planned wisely for any attack that might be launched against us. And if in God's mercy we are spared such an attack, the measures we have been discussing will bear results in a decrease of peacetime fire and a saving of many lives."

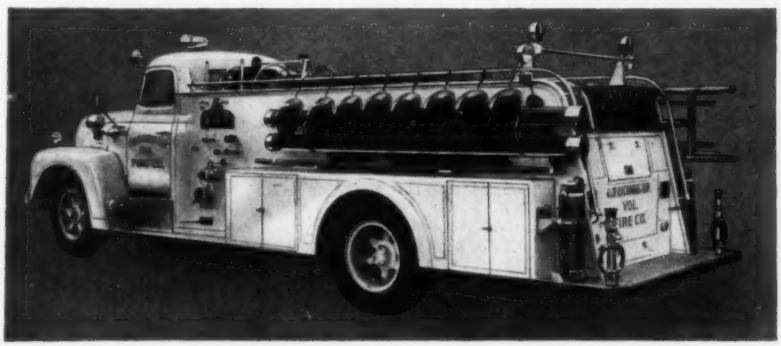
## Manpower

(*Continued from page* 904)

members of the press, it directly increases the public's appreciation of its department.

This is one phase of public relations. In addition, a conscientious effort must be made by any and all means possible to bring to the public's attention the job being done by the department and, as diplomatically as possible, the even better job which can be done by a stronger department. Members of the department with public speaking ability should be selected, trained and encouraged so that any request for a speaker can be filled, and similarly men with special abilities should be made available to aid civic groups in training for fire safety. Efforts must be made to cultivate personal contacts with specific individuals of staff level within local newspaper, radio, television, social and civic groups. We have found that considerable radio and television time can be obtained by preparing beforehand a carefully worked out program which is both entertaining and informative. It is equally important that all members of the department be educated and disciplined to appreciate the importance of keeping the occasional disagreements within a department out of the public eye.

For the last year we have had in effect a plan of organized home inspections by individual company members. These men have received instructions on how to best offer their help, how to conduct themselves and how to detect most home hazards. The apparatus is parked in the center of a block, the driver and officer remain by the radio to receive any alarms while the men proceed from door to door, offering their help. In addition to direct reduction of fire loss, the department secures good public relations by bringing to the individual home owner a courteous, well groomed, uniformed fireman, who is anxious to help him protect his home. Along these lines, sound salvage and overhaul work in private homes is tremendously appreci-

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ated. It is likewise important that members of the Fire Prevention Bureau, or those who carry out inspections, be selected for ability in public relations as well as in detecting hazards.

Of equal importance with good public relations are good relations and understanding between the department and the municipal administration. The need to literally educate public officials in the requirements of good fire protection, including adequate manpower, cannot be over-emphasized. It is not sufficient to feel they should know these things or learn them by their own efforts, nor is it right to feel that not being professional fire administrators they cannot understand these things and should be expected to take the Chief's opinion without question. Being subjected to intense pressures, as they are, to allocate available revenue to projects which show immediate results, it requires careful efforts to prove to them the long term value of investing in adequate manpower for the fire department. Above all, the Underwriters' municipal rating standards should be explained so as to illustrate the relations of full manpower upon fire loss and insurance rates. The degree of acceptance by public officials will, in a large part, be determined by the degree of sincere loyalty they feel th department holds towards them, and such feeling should be upheld. This is not a mere question of politics, since departmental discipline depends upon loyalty to senior officers in the line of which governing civic officials are senior to the department. Such loyalty does not mean that all candidates during elections should not have equal access to personnel while they are at the fire station. Five minutes at Roll Call is sufficient for each to present his platform, meet the departmental personnel and feel that he has received their courteous attention.

As an additional thought for those departments in which the majority of the men belong to an active, cohesive organization or association, with intelligent leadership, cordial relations and confidence between the department's administration and such leaders, it will help them to appreciate the long range benefits of having greater manpower at perhaps a somewhat lower wage scale than might be immediately possible.

We have found no single cure-all method which will serve to bring departmental manpower up to strength.

The degree of fire protection of a municipality depends upon the active cooperation of its Fire Department, its taxpayers and its administration. In the final analysis, it is a prime responsibility of the Chief to maintain a constant, effective program of education for all three in the mutual advantages of having full manpower, efficiently used.


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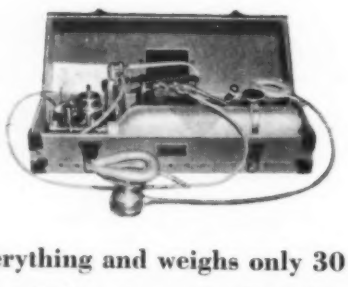

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### WINSTON-SALEM, N. C.
### M. G. Brown, Chief

The following suggestions are considered in the knowledge that it is very difficult to secure increased salary appropriation allowance for present or additional personnel.

Suggestion: That local insurance authorities, chambers of commerce, civic organizations and the press appoint qualified representatives to meet and confer with city government officials and fire department management for the purpose of analyzing the personnel shortage situation. From these conferences all possible pertinent information should be assembled and publicized to point out the necessity of and justification for additional personnel requirements. Articles published should include current insurance rates, valuation of property at risk, percentage of tax dollar allocated for fire protection (percentage of tax dollar proposed to be allocated for fire protection) as compared with percentage allowance authorized for other public services, etc.

With this information, I believe the average taxpayer would be convinced of the merits of adequate fire department personnel strength and as a consequence he would support a program designed for the purpose of increasing personnel salary allowances.

I might add, though with considerable regret, that we too at this time are experiencing a shortage of personnel strength in our department.

### GREENVILLE, MISS.
### A. Z. Lokey, Chief

There are several answers to the question of why most fire departments suffer from a shortage of personnel. My department is not in this category yet; however, I may be able to offer a few suggestions that need to be put to work in many departments that I know. I was president of the Mississippi State Firemen's Association this past year and I know every department in the state fairly well.

I know what firemen want and I know what they don't want; I know the type of chief officer that they want to work for. A chief officer can demand respect

but he cannot demand their loyalty; loyalty is one thing that he must earn.

First, a chief officer must prove that he is interested in his men, interested in their welfare and the welfare of their families; a lot of the present day chiefs came up under the old hard-boiled chiefs, so they dish out the same treatment that they received, and a lot of them are still fighting fire just like the old chief taught him.

I know some chiefs that will not ask for an increase in pay for their men if they see there is no raise for themselves; and some chiefs have a misconception that they are better than their men; but that type never gets a good job done.

I believe in being firm, but as kind as I know how. In our department we have no dissension. Every company officer and every chief officer knows how to be firm, but considerate.

When I ask my City Council for an increase in salaries for my department and they are not favorable, I tell them that a fact is a fact and that they cannot jump over it nor crawl under it or step around it; that they must either face it or close their eyes and mind and turn their back to it. I tell them that the efficiency of the fire department is in their hands and that they can vote for or against it.

The pay in my department is nothing to brag about but it is second best in the state and we never have a shortage of manpower. All the firemen in the state like my way of setting up a pay scale. My City Council fully approves it. Most fire departments in this state have a differential of only $15.00 per month between the Captain and Private and a Lieutenant in charge of the other shift. Any chief should realize that the captains are the backbone of his department and should make every effort to see that they are paid from thirty to fifty dollars per month more than a private.

**GREENVILLE, MISSISSIPPI FIRE DEPARTMENT SALARY SCHEDULE: AS RECOMMENDED FOR THE FISCAL YEAR 1954-1955**

| No. of Men | Rank | Monthly Salary |
|---|---|---|
| (1) | Chief | $500.00 |
| (1) | Asst. Chief | 335.00 |
| (1) | 2nd Asst. Chief | 325.00 |
| (4) | Sr. Captains | 300.00 |
| (4) | Jr. Captains | 290.00 |
| (5) | Lieutenants | 280.00 |
| (4) | Engineers | 280.00 |
| (5) | Firemen 1/C | 270.00 |
| (8) | Firemen | 260.00 |

The current difficulty in securing increased salary appropriations is the main cause for a shortage in manpower on most fire departments.

### OMAHA, NEB.
### Eugene W. Fields, Chief

Our problem is one of budget—having the City Council provide sufficient monies for additional manpower. Manpower is readily available and present on a waiting list.

*(To be continued)*

## Fire Water Bottle

The glare of the sun through a bottle tossed in a bed of pine cones was believed to have been responsible for starting a forest fire that blazed through 3,000 acres of brush and timber near the Colorado-New Mexican border.

Thanks GEORGE WARREN.


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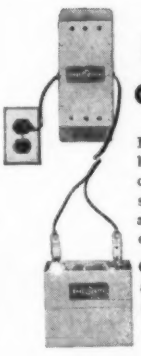

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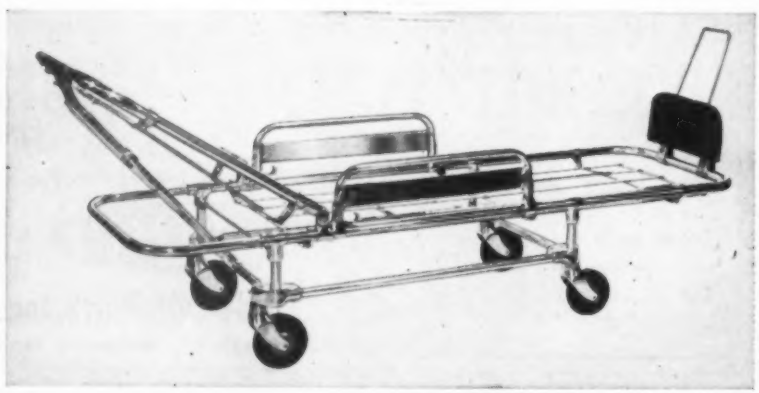

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## Obituaries

### Chief F. E. Hover Dead

Chief Frank E. Hover, 49, head of the Niles Township Fire Department passed away at his home on August 31st. He was born in South Bend, Indiana, and moved with his parents when a small boy to Niles Township where he made his home until the time of his death.

Chief F. E. Hover

Chief Hover started in the fire service when appointed to the Niles Fire Department as a pump operator and a member of the Fire Prevention Bureau on October 16, 1940. Fireman Hover resigned from the Niles Fire Dept., September 15, 1953, to accept the position of Chief in the newly formed Niles Township Fire Department, Michigan.

Chief Hover was responsible for the development of two Niles Township Fire Stations plus the organizing and training of a combination paid and volunteer force which numbered 66 men. Through the experienced guidance of Chief Hover, the Niles Township Fire Department was built into a highly efficient fire fighting organization.

In addition to Chief Hover's fire service duty, he also served his community for 19 years as a member of the Board of Education in the Niles Township School System.

### Father John Tully Dies, Buffalo F.D. Chaplain

The Rev. John F. Tully, Catholic chaplain of the Buffalo, N.Y., Fire Department since 1940, died Aug. 21 of a heart attack.

Father Tully, 44, responded to all multiple alarm fires, visiting sick and injured firemen and conducted Catholic services for the department. He died at the Erie County Fair where he was exhibiting a filly he raised from a foal.

PAUL C. DITZEL

### Arson Expert Haggerty Dies After Operation

Detective Sgt. Charles L. Haggerty, 46, head of the Buffalo Police Department Arson Squad since its inception in 1944, died Aug. 19, after surgery following his collapse in police headquarters.

Haggerty in 1953 was elected president of the International Association of Arson Investigators and was elected to its board of directors this year. He also was an honorary member of many Western New York volunteer firemen's organizations.

PAUL C. DITZEL

## Chief Wm. E. Dunleavy Dead

Fire Chief William E. Dunleavy of Belleville, N.J., died September 15, in Columbus Hospital shortly after he was stricken suddenly at the home of Fire Captain Carl Hundertpfund, 32 Lincoln Terr., Belleville, where he had stopped for a visit. Chief Dunleavy, who lived at 9 Preston St., Belleville, was 56.

A life long resident of Belleville, Chief Dunleavy worked as a railroad lineman before his appointment to the Fire Department in February, 1923.

He was appointed a captain in July, 1929, battalion chief in April, 1935, and deputy chief in June, 1941. He had been chief of the department since July, 1946.

Chief Dunleavy's death was the second of a ranking officer in the department in two weeks. Deputy Chief William J. Gilchrist died suddenly while directing operations at a two-alarm lumber yard fire in Bloomfield Sept. 2.

Chief Dunleavy was a member of the International Fire Chiefs' Assn., the New Jersey Paid Fire Chiefs Assn., the New Jersey Superior Officers' Assn., and the International Signalmen's Assn.

## Ex-Chief P. M. Bond Dead

Platt M. Bond, a former Hornell, N. Y., Fire Chief, passed away in St. James Hospital on August 28, 1954.

He was 84 years old, and was born in North Bloomfield, N. Y. He had resided in Hornell for the past 50 years.

He was appointed Chief of the Fire Department in May of 1923. In addition to his duties as head of the fire department, he was also superintendent of the fire alarm system, fire marshal, building inspector, and enforcing officer for the State building code.

Bond retired from the Department in June of 1940, having served 17 years.

He was also a veteran of the Spanish American War, having served in the cavalry.

## Forest and Field Fires

(*Continued from page* 901)

reported fires were lurking in the woods around nearby Marinette. The Peshtigo correspondent wrote: "Unless we have rain soon, God knows how soon a conflagration may sweep this town."

On the 8th, a copper sun hung over the baked town. The air was deathly still. Flocks of birds were forming and flying by. By noon the sun disappeared and the sawdust streets and wooden sidewalks were lighted by a strange yellow half-light, which came from no visible source. Townsfolk were uneasy. There appeared to be no qualms among the 200 or more "working stiffs" who had come into town that morning to lay rails for the new railroad. They were celebrating.

The local folk attended church and sat down to their heavy Sunday dinner. As the afternoon wore on, hot and still, the smoke-charged air made the eyes water. By supper, dark ashes were drifting through screenless windows. As


# BOYER and MIDWEST

## Custom Built Fire Trucks

**A MIDWEST 750 g.p.m. Triple Combination Pumper with Hale Pump Delivered to Shelbyville, Indiana**

*Built By*

# UNIVERSAL

## FIRE APPARATUS CORP.

Successor to Boyer Fire Apparatus Co.

LOGANSPORT INDIANA

# FIRE HOSE

*is our* ***ONLY*** *business!*
*—and it's* ***BOOMING!***

MUNICIPAL
UNDERWRITERS
MILL
LINEN
FLAX
and amazing DACRON

*For samples, write to—*

**BLAZE GUARD MFG. CO.** 2026 83rd STREET NORTH BERGEN, N. J.

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*Both Pleased* with this new and better*

## FIRE APPARATUS PUMP

* Both pleased! City of Los Angeles using 10—County of Los Angeles using 7 units. Whether you are writing specifications for a new truck—or rebuilding an old one—you owe it to yourself to look into the Leonard Pump. It is specifically designed and built for rugged fire service. Delivers 150 GPM at 150 lbs. pressure. Shafts are mounted on Timken Bearings to prevent wear, suction and pressure loss. We'll welcome your request for complete information.

*National Distributor*
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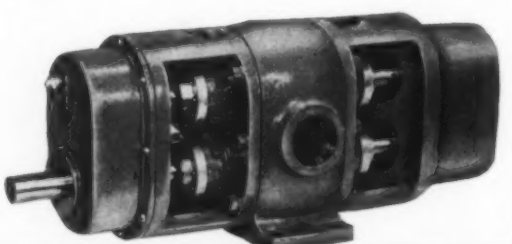
*Specify the* **LEONARD PUMP** *on all new trucks!*



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NOW IT'S AUDIO HAILER for long-range hailing with the POWER and CLARITY you need to be HEARD and UNDERSTOOD above noise and wind at great distances. Rugged, weatherproof, quality construction by AUDIO—originators of the Power Megaphone, suppliers to the U. S. Navy. *FREE literature.*

- **ONE *Self-contained* UNIT...NO CABLES! LIGHTWEIGHT...ONE-HAND OPERATION.**
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*DEALER INQUIRIES INVITED*

AUDIO HAILER

**AUDIO EQUIPMENT CO., INC.—GREAT NECK, N. Y.**


night closed, people could see a dull red glow over the tree tops to the southwest. Some thought they could hear a low moaning noise in the night, far off, that gradually changed to a sullen roar.

Nobody took any action, or apparently attempted to find out what was happening. Suddenly a flying slab, ablaze, came hurtling out of nowhere to drop in the street. Others followed it. Fire literally rained down. In a flash, the wooden pine sidewalks were aflame.

As startled people crowded onto doorsteps, roofs began to catch fire. There came weird noises from the forest, crashing and booming, with an undertone roar like Niagara. Wild animals came dashing through the streets. Within five minutes the town was an inferno.

Accounts vary about what followed. There were the heroes and the craven ones. There were those who ran, and those who stayed to try to gather possessions. But there is no report of any organized fire defense effort. It is known that some 40 persons in a wild stampede rushed into the company's boarding house, and were there cremated. Others ran for the bridge, to meet headlong those from the other side heading their way. The bridge began to burn, as did the sawmill by the east end of the bridge. Even the logs in the millpond took fire. There was awful confusion. Some were trampled to death; others jumped into the water, some of these to drown.

There was a race to reach the river, but not many made it. Some did, only to sink. Others stood in the water ducking their heads against the onrushing heat. Many were swept downstream against the dam—itself on fire. Down the river too came floating logs, afire, and animals that swam with the current. When the fire engulfed the Peshtigo factory, flames shot skyward—then were picked up by the increasing gale. Blazing tubs and buckets flew into the night, to further spread death and ruin.

The entire town of Peshtigo was wiped away within one hour. But death struck all around, as well. The Sugarbush district southwest of town was seared. Thirteen bodies together with the remains of 23 horses, 15 sheep, two cows, two calves, one ox and a dog were found in one location. In Lower Sugarbush, the burned bodies of 18 members of one family were found.

A number of people killed themselves rather than face the ordeal of burning. The ashes of some victims were found on the road, where they had tried to escape with their belongings, and horse and wagon. Only a few bits of iron were left. In Middle Bush, a family of five was wiped out.

The fire swept inexorably on, after wiping out Peshtigo. The lumber towns of Marinette and Menominee, opposite each other on the north and south banks of the river, were in its path.

Fortunately, however, the racing conflagration was diverted by a long line of sand hills, serving as "hogbacks" between Peshtigo and Marinette. The tornado of fire then moved west of the city, but was still able to destroy a planing mill, saw mill, church and most of the settlement of Menekaune, with another sawmill and other structures.

As the raging, racing fire bore down on the twin cities, lumber operators and city officials marshalled all possible forces and set them to work hauling water, digging trenches, wetting down

buildings and covering roofs with wet blankets. The night of the 8th when it appeared the two communities would fall before the fire, most of the women and children, and some men, it was said, boarded three steamers at the docks, which then put out into the lake, where they remained until next day.

Death and destruction by fire swept down upon the east shore of Green Bay at about the same time Peshtigo was being destroyed. Coming from nowhere, the blaze wiped out New Franken and Robinsonville, roared up the Peninsula to Williamsonville, where 35 bodies were found in a heap, and others in clearings and in parboiled well water. This fire also swept Brussels and Little Sturgeon.

The pathetic story of the survivors, many terribly burned and otherwise injured, is a tale in itself that cannot be told here. Suffice to say there was practically no attempt at delaying the onrushing flames in Peshtigo or most of the other places engulfed. Only where courageous men, aided by natural obstacles, marshalled all possible citizens and others to set up defenses, were there results. It was still too early in the history of this country to have fire engines in towns and villages, at least in that area. In the lumber country, everybody counted on "the mill" to take the lead in fire defense, as it ultimately did in turning to ashes.

The actual casualties in this fire will never be known. A total of 1,500 for the area has been established. Stewart H. Holbrook in his book *"Burning an Empire"* says the heaviest toll was in Peshtigo itself where "more than 600" were buried. Today there is a marker on the highway by the river in Peshtigo reading: "To the Memory of over 600 men, women and children, who perished when every building of Peshtigo was burned, and many surrounding farms were destroyed in the Great Tornado of Fire, Oct. 8, 1871." Erected by Frank E. Noyes.

In the lower Sugarbush area, 120 were known to have died; 75 in the Middle and 60 in the Upper. The total dead on the Peninsula was at least 75, states Mr. Holbrook; and 22 at Birch Creek, Mich. (razed when the flames jumped the river). A "conservative estimate" of dead on isolated homesteads, logging camps, and trappers' cabins was 200. These minimum figures make a total of 1,152. And Mr. Holbrook concludes: "In any case, it was by far the greatest toll taken by a forest fire in North America and probably in all the world.

## British Civil Defense Lags

According to press reports, only 312,376 persons have joined the Civil Defense Corps in England since the opening of recruitment in 1949. This compares with a volunteer enrollment of 352,395 in New York City alone.

Interest in civil defense in England has been steadily declining, it is reported. In Sweden, on the other hand, civil defense participation by persons between 16 and 65 years is compulsory and the present enrollment numbers, it is said, about 1,000,000. Since 1950, about 70,000 defense workers have been enrolled in Denmark, according to an unnamed recruitment authority of this country, who also reports conditions are not very good in France, where there is no voluntary program.


Oil Reservoir — Filled through pipe plug in bonnet — assures positive lubrication of stem threads.

Dry Top Design — Prevents freezing of stem threads.

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AWWA Improved

FIRE HYDRANT

"O" Ring Seals — Make permanent water-tight seal around stem.

Breech Locked Nozzles — Interlocking lugs prevent blowout.

Safety Stem Coupling and Safety Flange — Coupling and flange break on impact, preventing damage to stem and barrel. Permits convenient facing of nozzles. Extension sections may be added or upper barrel may be changed from two-way to three-way hydrant without digging or water shut-off.

Compression-type Main Valve — Closes with water pressure.

Double Drain Valves — Integral part of main valve assembly.

Double Drain Openings — Force flushed each time hydrant is operated.

Bronze Seat Ring — Straight threads for easy removal.

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MUELLER CO.
*Dependable Since 1857*

*2501 Chestnut St., Chattanooga, Tennessee*

CIRCLE-D PORTABLE LIGHTS

COMPACT-
POWERFUL
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Small in size, Circle-D Portables with full power sealed beam lamps deliver light output equal or greater than that of lamps often many times their size. Circle-D lights are available for 200-300-500-750 and 1000 watt output.

Typical of the many fire companies that are using Circle-D Portables is the Manahawkin, New Jersey Volunteer Co. The compact size of Circle-D Lights makes them easy to carry, easy to stow in equipment compartments and easy to mount most anywhere. Shown above are Circle-D Portables, mounted to utilize unused running board space. Lights are instantly removable with Circle-D Quick Release Hold Down Clamps.

SEE YOUR FIRE EQUIPMENT DISTRIBUTOR OR WRITE

CIRCLE LIGHTS

NATALE MACHINE AND TOOL CO. (R) 339 HIGHWAY 17 CARLSTADT, N. J.

# SECONDS COUNT

**when your life is at stake**

# Pocketaire

**on the man and in action in only 7 seconds**

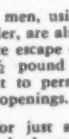
Compact, light, completely self-contained, Pocketaire breathing apparatus provides a modern approach to Fire Attack. Its use of oxygen, the only element in air essential to sustain life, involves a minimum of weight and bulk. A rebreather bag provides the needed "fill air".

"First-in" men, wearing a feather-weight 4½ pound Pocketaire, are protected against every breathing hazard by a 5 minute work cylinder and an escape cylinder which assures an additional 5 minute safety margin.

"Follow-up" men, using a 15 minute work cylinder, are also safeguarded by the 5 minute escape cylinder. Even this larger 6½ pound unit is sufficiently compact to permit free entry through small openings.

Recharged for just a few pennies from any standard oxygen cylinder, Pocketaire is an inexpensive, lifesaving, breathing apparatus.

Pocketaire . . . longer life for fire fighters



model #1500 $98.50 goggles and carrying case additional

**THE CYCLE-FLO COMPANY**

**986 Bridgeport Ave., Milford, Conn.**

Please send me your booklet on Pocketaire Breathing Equipment.

Name .....

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A few distributorships are still available. Write for details.


## What's Burning

THE following list includes fires of $10,000 and over in the United States and Canada for the month of September, 1954.

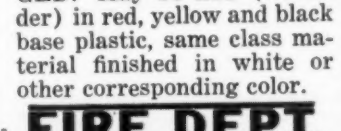
### Month Ending September 30, 1954

**Troy, Ala.**—The cottonseed oil crushing division of Standard Chemical Co. plant, destroyed.
**Blytheville, Ark.**—Pepsi-Cola Bottling Co., plant damaged.
**Pocahontas, Ark.**—Dalton Consolidated School, 18 miles southwest, destroyed.
**Los Angles, Cal.**—Alexander P. Primo's Cafe, destroyed. Discarded cigarette.
**Orick, Cal.**—Lumberjack Tavern and self-service laundry, and an adjacent dwelling, destroyed.
**Placerville, Cal.**—Hangtown Lumber Co. mill, four miles east, destroyed.
**South Gate, Cal.**—Warehouse full of industrial paper bags on the grounds of the Maas Chemical Co., destroyed.
**Van Nuys, Cal.**—Retail appliance store at 14412 Victory Boulevard, damaged.
**Alamosa, Colo.**—Twenty-seven voting machines in the county shop, destroyed. Faulty wiring.
**Manzanola, Colo.**—National Alfalfa Dehydrating and Milling Co. plant destroyed. Bits of hot baling wire and rake teeth getting into the alfalfa grinders.
**New Haven, Conn.**—Howe street business block including clothing cleaners, destroyed.
**Plantsville, Conn.**—Drop forge department at Thomson Drop Forge Co., destroyed.
**Wilmington, Dela.**—Lee Bros., Inc., cleaning plant, Cranston Heights, destroyed.
**St. Augustine, Fla.**—Alhambra Hotel destroyed.
**Lewiston, Ida.**—Home Lumber Co. and Producers Proof Packing plant, destroyed.
**Chicago, Ill.**—Stable at fashionable Hawthorne race track with 29 thoroughbred horses, destroyed.
**Clifton, Ill.**—Five business establishments in business section, destroyed and a sixth damaged.
**Evanston, Ill.**—Building occupied by A. & P. supermarket, damaged.
**Rock Island, Ill.**—Former Rock Island Brewery Co. building used for storage purposes by six firms, including a liquor distributing company, destroyed.
**Tipton, Ind.**—Goldsmith grain elevator, damaged.
**Louisville, Ky.**—Two horse barns on farm adjacent to Brentlawn Raceway, six miles east of Middletown, destroyed.
**Thornton, Ky.**—Coal tipple at Elkhorn Junior Coal Co., destroyed.
**Yancy, Ky.**—Tipple at Harlan Fuel Co.; mine, eight miles south, destroyed.
**Baton Rouge, La.**—Warehouse used by the State Department of Education to store government surplus equipment, destroyed.
**Burnham, Me.**—Reynolds Bros., Inc., furniture factory, destroyed.
**Baltimore, Md.**—Building occupied by United Distributing Co., damaged.
**Boston, Mass.**—Building in Boston's South End, including Club Zara, damaged.
**Middleboro, Mass.**—Bates School damaged.
**Detroit, Mich.**—Wilson Lumber Co. yard destroyed. Fire also spread to properties of the National Biscuit Co. and Pioneer Engineering and Mfg. Co.
**Detroit, Mich.**—Wells Lumber Co. in northwest, destroyed.
**Flint, Mich.**—Two barns on Dewey Robert Harshbarger farm, on northwest outskirts of city, destroyed. Spontaneous ignition.
**Holly, Mich.**—Dairy barn on Mathew Satkowlak farm destroyed. Spontaneous ignition.
**Lansing, Mich.**—Chemox Corp. and Lapaco Chemical Co. plants, destroyed.
**Hopkins, Minn.**—Star Theatre destroyed.
**Greenville, Miss.**—Clothing store in business district, destroyed.
**Greenwood, Miss.**—Warehouse used by Delco Furniture Co. for storage purposes, filled with new furniture, damaged.
**Greenwood, Miss.**—Bright Building in downtown, housing F. W. Woolworth store and professional offices owned by Dr. Ira Bright, damaged.
**Jackson, Miss.**—Jackson Wood Products Co. plant destroyed. Burning trash.
**Mt. Olive, Miss.**—Office of Calhoun Co. general merchandise store, destroyed; Calhoun Furniture Co. and Calhoun Implement Co. in business district, damaged.
**Kansas City, Mo.**—Feed dehydrating plant at Central Feed & Grain Co., destroyed.
**Butte, Mont.**—Classic Bar Restaurant destroyed. Cigarette.
**Great Falls, Mont.**—Rainbow plant of Montana Power Co., damaged. Explosion.
**Roundup, Mont.**—Roundup Mining Co.'s plant

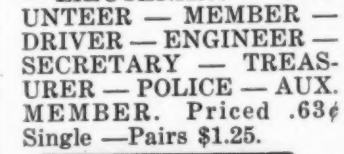

# FIRE DEPT. IDENTIFICATION PLATES

**OFFICERS**
**MEMBERS**
**CIVILIAN DEFENCE**
**FIRE DEPARTMENTS**

Firemen's three dimensional Silhouette style individual identification plates as ILLUSTRATED; especially made for outdoor use. Standard made in White base plastic—letters finished in FIRE ENGINE RED—Don't rust, no rattle, RUGGED. May be had (on order) in red, yellow and black base plastic, same class material finished in white or other corresponding color.




Wording under FIRE DEPARTMENT — Standard made; CHIEF — ASSISTANT CHIEF — CAPTAIN — LIEUTENANT — VOLUNTEER — MEMBER — DRIVER — ENGINEER — SECRETARY — TREASURER — POLICE — AUX. MEMBER. Priced .63¢ Single —Pairs $1.25.




Special made with name of your department, city, township, Club, etc. Minimum order 50 plates @ .88¢ each, 100 @ $62.50. Specify lettering with order, limiting top line to TEN ROMAN type letters (as shown in above design), bottom line to 12 to 13 ROMAN type letters or, 18 condensed letters, ⅝ inch high.

On the market for over seven years.

*Write for circular.*

**E. B. Lane, Distributor**
**32 Greenwood Avenue**
**TOLEDO 5, OHIO**

No. 3, loaders, railway cars and machinery destroyed. Overheated electric motor.

**Manchester, N. H.**—Building housing officers' club and mess at Grenier Air Force Base, destroyed.

**Atlantic City, N. J.**—Building known as Camden Court storehouse owned by Harry McCarrigel & Sons, their home, an oil servicing building and candy store, at Gardner's Basin, destroyed; a charter fishing building, three dwellings, garage and cooperative fish market, damaged.

**Atlantic City, N. J.**—Seven shops on the land side of the boardwalk and four on the Ocean side, at Steeplechase Pier, damaged.

**Bloomfield, N. J.**—Stanley Lumber Co. destroyed.

**Bridgeton, N. J.**—Trucking terminal and four tractor trailers of Lahn Transportation Co., Route 77, Caril's Corner, destroyed. Gasoline explosion.

**Dover, N. J.**—Salvation Army Citadel damaged.

**Eastport, N. Y.**—John Duck's Hotel and restaurant, destroyed.

**Poughkeepsie, N. Y.**—Store of Goodyear Tire and Rubber Co. destroyed; adjoining Empire market, damaged.

**Rochester, N. Y.**—Kasiner Hobbies, wholesale distributor, destroyed.

**Roslyn Heights, N. Y.**—Clubhouse of Roslyn Country Club, destroyed. The club is a recreation center for property owners in a nearby Levit housing development.

**Sloan, N. Y.**—Lumber shed at Delaware, Lackawanna & Western Railroad yards destroyed; car repair shop and about 20 freight cars damaged.

**Charlotte, N. C.**—Bryant Wentz Co., men's clothing store in downtown section, damaged.

**Fairmonat, N. C.**—Standard Plywood Inc. destroyed. Boiler room explosion.

**Williston, N. D.**—Nash-Finch wholesale warehouse destroyed.

**Wheat Ridge, Ohio**—Food store, destroyed.

**Youngstown, Ohio**—St. Columba's Cathedral destroyed. Lightning bolt.

**Grants Pas, Ore.**—Roue River Hardware Co. destroyed.

**Portland, Ore.**—Therm-O-Seal Insulation Co. plant warehouse destroyed. Short circuit.

**Portland, Ore.**—Superbilt Manufacturing Co. destroyed. Incendiary.

**Caesars Head, S. C.**—Historic Caesars Head Hotel destroyed; cottage and servants' quarters adjacent also destroyed.

**Ridge Spring, S. C.**—The Ridge Spring Manufacturing Co. plant destroyed.

**Baxter, Tenn.**—The Baxter Seminary gymnasium destroyed.

**Maryville, Tenn.**—Everett Junior High School building destroyed. Defective wiring.

**Nashville, Tenn.**—Half of seed warehouse of E. K. Hardison Seed Co., destroyed.

**Oak Ridge, Tenn.**—Projection booth, equipment and concessions building at Burchfield Drive-In Theatre, destroyed.

**Houston, Tex.**—Building housing Gardens Villas Conoco Service Station, Garden Villas Barber Shop, The Leisure Lady Washateria, Garden Villas Bakery and Garden Villas Drug Co., destroyed.

**Wichita Falls, Tex.**—J. C. Traynham Building, which contained farm implements, auto parts and seed products; a new car warehouse of Mattingly & Grace Buick Co. and Glo-Lite Neon & Manufacturing Co., destroyed.

**Brigham City, Utah**—Big (J) Milling Co. plant damaged.

**Dayton, Wash.**—Dayton Feed & Seed Co. destroyed.

**Ephrata, Wash.**—Sun Basin Lumber Co. destroyed.

**Walla Walla, Wash.**—Jaymar Sawmills contents and machinery, destroyed.

**Wilbur, Wash.**—Ted's tavern destroyed.

**Rainelle, W. Va.**—R. H. Bowman Distributing Co. warehouse on the outskirts of this Greenbrier County community, destroyed.

**Green Bay, Wis.**—Five million-gallon storage tank with 40,000 gallons of gasoline at Wadham's Marine Terminal, division of Socony Vacuum Oil Co., destroyed. Sparks from pump used to empty tank.

**Casper, Wyo.**—Schulte Hardware Co. tire store destroyed. Defective wiring.

**Gananoque, Ont.**—Ground floor of three-story brick building occupied by Oakley Electric Shop and Webster's Clothing Store, which were badly damaged and Woodley Jewelry Store which was virtually destroyed.

**Anchorage, Alaska**—Anchorage Public Utilities Diesel plant, destroyed.

## What's in a Name?

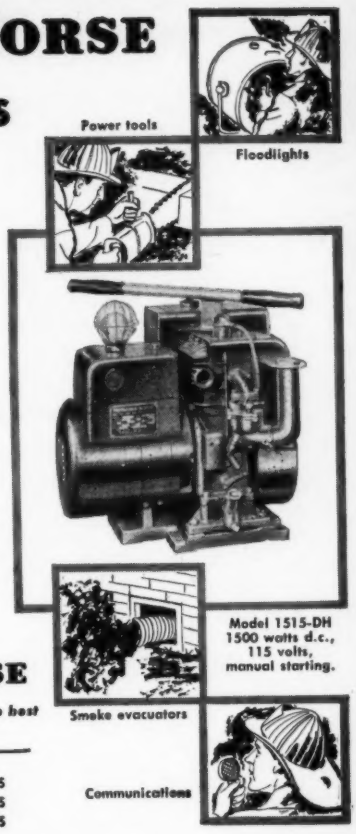
The Georgia community of Sparks has a volunteer fire department of 27 men and a new 500-gal. pumper equipped with 500 gal. booster tank, 1,000 ft. of 2½-in. and 300 ft. of 1½-in. hose and all the "tools of the trade" including fog nozzles.


# FAIRBANKS-MORSE

## Portable Generators

### *for fire fighting —life saving*

Many fire companies make room on one pumper or disaster truck for one or more Fairbanks-Morse portable power generators. They are used to power communication systems and pumps, floodlights, smoke evacuators and power tools. Fire prevention officials often recommend larger Fairbanks-Morse generators for emergency service in stores, theatres, and public buildings. Sizes 10 kw. to 40 kw. a.c. can be installed as permanent mobile units. For complete information write Fairbanks, Morse & Co., Chicago 5, Illinois.

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*a name worth remembering when you want the best*

WATER SYSTEMS • GENERATING SETS • MOWERS
HAMMER MILLS • MAGNETOS • PUMPS • MOTORS
SCALES • DIESEL LOCOMOTIVES AND ENGINES

*When you need Shut-Off Nozzles—DEMAND the—*

# COLT

*The Shut-Off Nozzle With the Reputation*

OUR more than Forty Years' Experience in Manufacturing Nozzles cannot be denied, and backed by a Five-Year Guarantee on each Nozzle, you Obtain only the Best when you get a *COLT*.

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Playpipes, Siamese—Plain or with Shut-Offs, Hydrant Gate Valves, 1", 1½", 2½" Quarter-Turn Shut-Off Single Valves, Water Thiefs. All types Brass Hose Connections.

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Our Facilities for Making Up Your Special Items Are Unexcelled.

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Your Jobber or Dealer Can Supply You with Guaranteed Colt Shut-Off Nozzles and Allied Brass Products.

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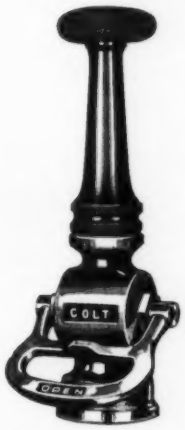


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*42 Years in Fire Protection*

# EXCELSIOR BRASS MFG. CO.

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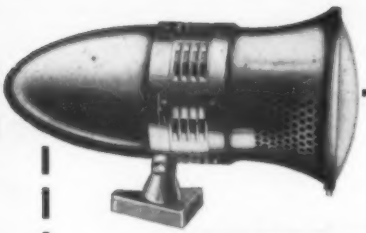

**MODEL 20 SIRENLITE**
**for Emergency Vehicles**

Siren sounds a penetrating warning, red light automatically flashes authority. Traffic opens instantly, day or night. FREE ROLLING feature.

**STERLING SIRENS**

- **HANDSOME**
- **RUGGED**
- **RELIABLE**

Built by proud craftsmen to the highest standards of precision manufacturing . . . utilizing materials of finest quality . . . Sterling Sirens give year-after-year of unsurpassed dependability and satisfaction.

**MODEL M GENERAL FIRE ALARM SIREN**
**for Volunteer Systems**

Quick acceleration, power-plus . . . Model M really gets the boys out in a hurry! Used by championship companies from coast to coast. A dependable, heavy-duty siren built of the finest materials throughout.

Complete line of Siren Equipment • *Bulletin on Request*

**THE STERLING SIREN FIRE ALARM CO., INC.**
**10 BARTLETT ST., ROCHESTER 8, N. Y.**



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ANOTHER **NEW HOSE CLAMP**

**THE STREAM-LINED PEERLESS**

AUTOMATIC **LOCK**

AUTOMATIC **RELEASE**

LIFT THE LEVER—**WATER OFF**—

LOWER THE LEVER—**WATER ON**—

THE **BEST PEERLESS** OF FIVE MODELS

WE HAVE PUT ON THE MARKET IN THE PAST

**FORTY FOUR YEARS**

STILL GOING STRONG

**SPECIFY** THE PEERLESS AND GET THE **BEST**

*PATENTED AND MANUFACTURED BY*

**KELLAM MFG. CO. P. O. BOX 729—ATLANTA, GA.**


## High Point Fire

(*Continued from page* 906)

Snow Lumber Co., a short distance southeast of the City Hall. Firemen held the blaze to piles of lumber and several small warehouses.

High Point firemen, who were forced to drag out old reserve hose for use in fighting the chain of blazes, were assisted by men and equipment from Winston-Salem, Greensboro, Thomasville. Asheboro, Jamestown, Lewisville, Archdale, Triangle Volunteer Department and army fire fighting units from Ft. Bragg.

Chief Canady said the fire in the Jiffy company apparently broke out in a railroad box car, which was tied on a spur track beside the building. The blaze spread quickly to a loading platform in the rear.

The second fire destroyed buildings occupied by the High Point Lumber and Core Co. and Allied Metal Stamping Works in addition to Monarch and B. & W.

Canady said the Snow company's main shop was saved by a fortunate shift of wind about 4:30 A.M. This block, sided by Hamilton, Wrenn, Commerce and Green Streets two blocks from the heart of town, was about half burned out. The City Hall, which occupies a corner of the block, was not damaged.

Approximately 100 firemen and nine pumpers were sent from other cities.

Greensboro sent 20 men and three pumpers, the first group around 2 A.M. and the final group at 4 A.M.

## LPG Perils Los Angeles

(*Continued from page* 898)

tachment for automatic closing, failed to operate because of mechanical failure.

This meant that the 5,400 gallons of gas, with boiling points of 44 degrees and 31 degrees for propane and butane, respectively, and ordinarily kept under 90 pounds pressure, was now freed to vaporize into its normal gaseous form. This vaporization and the accompanying refrigerating action resulted in the formation of a mound of ice over the piping control pit, hampering shut-off attempts.

The incident again emphasizes precautionary measures necessary for all leaks of LPG, not yet ignited:

1. Prevent the movement of all vehicles and apparatus in the vapor area.
2. Notify the alarm office to request an explosimeter, and a fire prevention engineer, or deputy, and alert utilities affected.
3. Eliminate ignition sources as rapidly as possible in the vapor area.
4. Evacuate all persons from the vapor area to a location at least as far away as the diameter of the vapor cloud.
5. Only if a shut-off can be accomplished, and then only under protection of fog or spray streams, is an effort made to enter the vapor cloud. Vapors are not soluble in water, but fog or spray will assist in creating air currents to dissipate the vapor.
6. If rescue in manholes or pits is necessary, use self-contained breathing apparatus or hose masks.

High praise for averting a disaster went to the firemen, and especially to Inspector John W. Willis of the Fire Prevention Bureau, whose specialized knowledge and efforts to effect a shut-off proved of inestimable value.—PAUL DITZEL.

## Chief S. Sonnerberg Studies American Methods

A young Scandinavian fire chief was an unexpected, but welcome visitor at the Pacific Coast Intermountain Fire Chiefs Association meeting at Long Beach, Calif., in August.

Sven Sonnerberg, chief of the Malmo, Sweden, Fire Department attended the meeting at the invitation of Dr. John Gerletti, general manager of the International Association of Fire Chiefs. Gerletti met Sonnerberg in New York City.

L. A. County F. D. Photo

**Chief Sven Sonnerberg (left), Malmo, Sweden, Fire Department, and Chief Keith E. Klinger, Los Angeles County Fire Department.**

"Visiting California has been one of my greatest experiences," Chief Sonnerberg stated. "Before this, I think my greatest U.S. experience was visiting the Naval Research Station at Washington, D.C."

The Swedish fire fighter spoke to the chief's group on differences between U.S. and Scandinavian fire fighting methods and equipment.

"My talk was quite a thrill," he said. "You know, I didn't exactly come here to speak and when I was asked to, I was surprised.

"People have been talking so much to me that my 'English brain' is tired although my 'Swedish brain' is still sharp."

Chief Sonnerberg said that it is difficult to compare U.S. fire departments with his own.

"Many of the conditions are different," he commented. "You know, different type buildings; different equipment. For example, nearly all of our buildings are wooden and old and dry. Of course, this makes for a high hazard."

The chief visited the U.S. nine years ago and boned up on American methods and equipment at that time. Then he returned to Malmo, was appointed chief, and started rebuilding the department.

"We bought much new equipment on the basis of my survey. This trip to Long Beach I learn something valuable, too, because we need a new fireboat. Here in Long Beach I see the new city fireboat which is much like what we will want. Now I go back and tell my City Council."

The chief left after the convention for a tour of the Los Angeles City and County Fire Departments and then stayed at a salvage patrol in Chicago before returning to Sweden September 1.

He has written and edited two widely read books in Scandinavian on fire fighting and fire prevention.

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## Camden Fire

(*Continued from page* 909)

tures and awnings in the neighborhood. A house adjoining the church at 915 Linden was threatened, but firemen prevented extension in this direction. Numerous householders in the area dragged their furnishings to the street, filled with milling spectators who swarmed over exposures and in the way of the fire fighters struggling to get heavy streams on the fire, and to cover threatened property. Exra police, aided by out-of-town help, found it difficult to control the crowds and heavy vehicular traffic which jammed up for blocks.

First arriving fire fighters found low pressure at hydrants on the small mains in the area and immediately notified the Water Department. Water Bureau Superintendent Edward G. Sheehan, who reached the church about half an hour after the start of the fire, reported that by that time pressure was built up to about normal, or about 35 P.S.I. The onlookers, including an army of sidewalk chiefs, however, were loud in their criticism of the lack of effective streams, particularly in the early stages of the conflict.

Gloucester, N. J., firemen responded to protect South Camden and the Gloucester Township firemen's canteen rolled with refreshment for weary firefighters. The Blackwood Fire Company brought additional portable lighting equipment.

Property loss was estimated at $500,000.

## Emergency Equipment

(*Continued from page* 911)

Workers of America; Brotherhood of Painters, Decorators and Paperhangers of America; Sheet Metal Workers International Association; International Association of Machinists; Employees Federation of Humble Oil & Refining Co.; Brotherhood of Locomotive Engineers; International Typographical Union and Printing Pressmen and Assistants Union; International Brotherhood of Firemen, Oilers, Helpers, Roundhouses and Ry. Shop Laborers; International Brotherhood of Boilermakers, Iron Ship Builders & Helpers of America; Brotherhood of Maintenance of Way Employees; Brotherhood of Locomotive Firemen and Enginemen and the Order of Railway Telegraphers.

## Ready for Business—But Invite Contributions

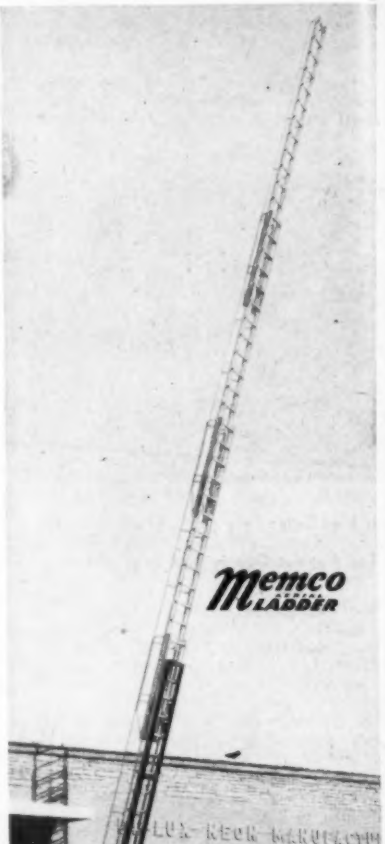
South Trail Area Volunteer Fire Department, down near Sarasota, Fla., moved into its new fire station Sept. 8th, ready for business.

The building was erected largely through contributory efforts of the volunteers and their friends, the latter now being asked to help further finance maintenance and improvements. South Trail volunteers will answer all alarms within their area whether or not the one wanting aid is a subscriber to its $5-per-year charge. But if the one requiring aid isn't a member, he shall be subject to a $25 minimum and $100 maximum tab, depending on hours worked.

The department operates one 500-g.p.m. high pressure pumper and one ambulance. A combination high pressure and volume pumper is on order.


## MEMCO AERIAL LADDERS

We invite you to see our newest model 65 ft. aerial in Houston during the IAFC convention in October.

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**MEMCO AERIAL LADDER CO.**
1007 N. W. 36th Street,
Oklahoma City 18, Okla.

## Sutton, Inc.

(*Continued from page* 914)

in the fire prevention contest. Now retired, the ex-chief continues his connection with the Brigade as director of fire services. But the driving force that placed the Sutton volunteers to the forefront and kept them there is Chief Jack Sheperd. He has an old-fashioned general store right across the street from the red-brick fire hall and is usually the first to respond to the alarm.

In case of need, 120 trained men can be mustered inside of 20 minutes to cope with any emergency. This is possible through the mutual aid pact consummated between four municipalities of the area. They sometimes call it the International Brigade for the three other municipalities are just across the 45th parallel. They are Enosburg Falls, 17 miles away; Richford, 8 miles away and East Berkshire, 13 miles distance.

## Off Duty Jobs

(*Continued from page* 895)

We work under the State Civil Service law that provides for a local Civil Service Commission to adopt rules under which the department works. This local commission has set up a rule whereby any man desiring to work off time shall obtain a permit from the commission and such permit shall be granted only if such off-time work is in line with Fire Prevention or Fire Protection. Consequently, we have very few requests for off-time work.

Although there is a rule against working off time, the department has not tried to strictly enforce this rule due to the high cost of living. However, some men are abusing the privilege and stronger enforcement is indicated in the near future.

We feel that there is some justification for letting men work on extra jobs as long as they are small, independent jobs and not full time that would be taking a job away from another workman who needs this job.

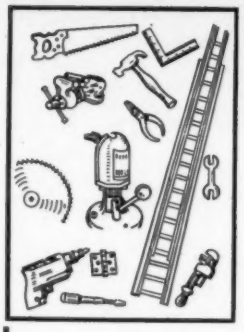
The advantages of letting men do extra work is to create a higher morale by relieving them of financial worries. The disadvantages are: neglect of Fire Department duties, dissenion among the members if not relieved at the exact time, criticism from labor unions and complaints from individuals that firemen are taking their jobs.

## RENO, NEV.
### K. L. Evans, Chief

Conditions in our Department are the same as they are in many Departments throughout the United States.

The Reno Civil Service rules prohibit Firemen and Policemen from working on off-shift jobs, except with the permission of the Civil Service Commission. Fire Department Rules and Regulations state that a member of the Fire Department shall devote all his time to the business of the Fire Department and will not engage in any other employment. In both cases, eyes have been closed regarding men working on the off-shift, beginning with World War II shortage of personnel.

Members of our Department have worked off-shift on outside jobs since that time, due principally to the fact that their Fire Department salary is not sufficient to maintain their homes in a manner in which they desire.

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The reason for overlooking this violation of rules by the Civil Service Commission, the City Administration and the Fire Department was that the City could not keep salaries abreast of the salaries paid by private enterprise.

This summer, during the period when there was a rather large unemployment list, I was contacted on two occasions by labor officials, questioning the necessity of firemen working on their off-shift, or in other words, holding down two jobs.

The advantage of men working on their off-shift enables us to maintain a higher class of personnel, for what we have to offer, the principal attraction being the long range security, such as steady employment, retirement, etc., should the country go into a recession or a depression.

The disadvantage of off-shift employment is the fact that the steady grind of working a 24-hour shift in the Department on one day and then 6, 8 or more hours on another job the next day tends to mentally and physically fatigue the member of the department operating in this manner.

Also I find that a man working on two jobs cannot apply himself to the business of the Fire Department as efficiently as one who devotes all of his working hours to the business of the Fire Department and his off-shift hours to the care of his home and recreation.

In all, the situation is not generally satisfactory and I strive to obtain salaries in the Department sufficient for members to maintain their homes without taking off-shift employment.

### PETERSBURG, VA.
### J. N. Farmer, Chief

We permit off-duty members to engage in private employment, if such employment does not keep them out of the city and they are ready for a call to a fire at any time. We know where they are at all times.

When we did not permit off-duty men to work, the ban was hard to enforce, and we lost some good men to private employment.

Where salaries are low, firemen should be permitted to work on their off-time, but not work so many hours or such hard work as to make them unfit to render good service if they should be called back to work, or at work on regular job the next day.

We find when a fireman works on his off-time he keeps in good shape and ready for a hard day at fighting fire. Such double duty will keep some of them out of trouble into which they might get without much to occupy their minds.

We have seen some men, who due to hard work on their off time, were not fit to do jobs as well as they should the next day, but we also find that by permitting off-duty firemen to work, we can keep a better class of workers.

We in Fire Service find that it is impossible for the cities to compete with federal government and private industry, for the source of any income is taxation, and by trying to compete with private industry, your tax rate would be a burden upon the people. Taking this into consideration, we find that outside employment is a necessity, and we are allowed the same privilege as private industry and federal employment by working on off time, so long as it does not interfere with the duties in the Fire Department.

### BREMERTON, WASH.
### T. R. Tillett, Chief

It is the policy of the Civil Service Commission of the City of Bremerton to allow off-time employment as long as it does not affect the efficiency of the Fire Department. Personnel must first make application to me stating the hours to be worked, type of employment, by whom employed and whether any injury or accident is covered by the employer. This department will not allow sick leave for any off-time injury if the employee is injured in off-time, gainful employment.

I do not personally subcribe to private employment in addition to their departmental work; but inasmuch as many municipalities pay low wages, most firemen must, because of necessity, find additional income. If adequate wages were paid municipal firemen in relation to governmental and private industry, I feel sure that very few firemen would be working on their off days. Some firemen appreciate being allowed to work. Others think they have a right because it is their own time. Most men who seek additional income need it, but in other cases this income has become a habit. This we find makes men harder to control, for in some instances the added income has caused their department work to become secondary.

The answer to the problem would be to pay municipal firemen wages commensurate with those paid by governmental and private industry and deny off-time employment. For instance, firemen in the Naval Shipyard here receive approximately $1,000.00 more per year than a municipal fireman.

Until the heads of our municipal governments recognize that the fireman of today is a specialist and should be so paid, we will still be on the same level as a common laborer.

### TUCSON, ARIZ.
### J. H. Freeman, Chief

We do allow our off-duty personnel to have private employment, as long as it doesn't conflict with their duties in the Fire Department; also they must be available at all times in case of a major fire or emergency.

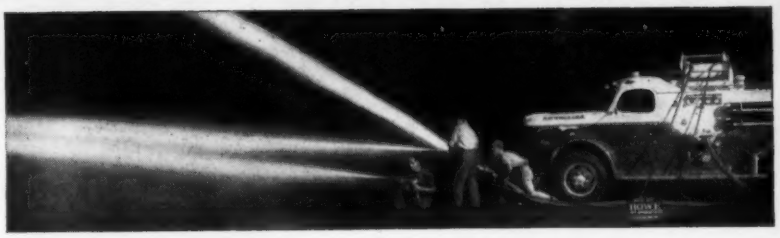
Working as we do, 24 hours on and 24 hours off, if a man works an eight hour day every-other day at private employment, it still gives him sixteen hours to rest and recuperate for his Fire Department duties.

We find this plan works very well and does keep up the morale of the personnel, because our salaries have lagged behind the general cost of living in this area.

### MASON CITY, IOWA
### Boyd Arnold, Chief

For many years a city ordinance and the department rule book forbade any member working on his off time. During the shortage of manpower, in World War II, the ordinance and rule were not enforced.

On January 5, 1953, the city ordinance and rule book were amended to the effect that a man is permitted to work on any day or date on which he did not work for the city. In our department the men work 24 hours on and off and, three times each month they have an off day or "Kelley day," so they are legally permitted to work the "Kelley" or "off-day"

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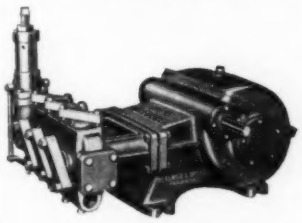

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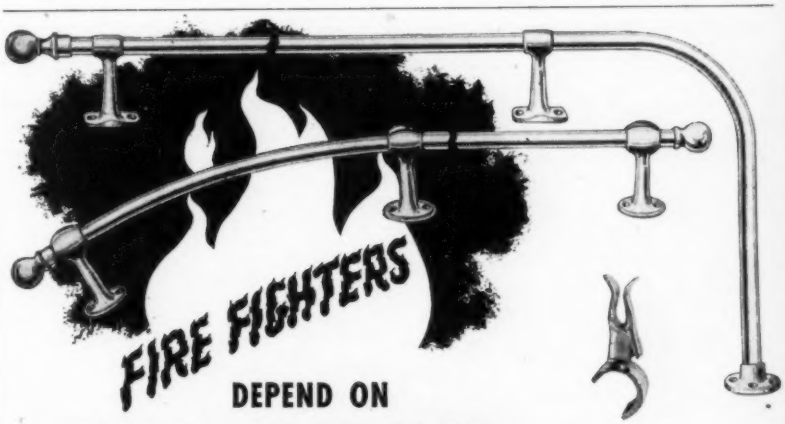

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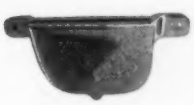

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**$7.20**
PER DOZEN
(F.O.B. So. River)


and the day following because they have not worked for the city. This gives them six days each month in which they can legally work, plus their vacation. Also you will note the Chief may grant them permission to work on jobs similar to their work as firemen.

At the present time the above ordinance and rule is in force and we try to enforce it; however, it is a difficult job because the Chief Officer has too many other things to do, let alone police his men on their off time.

I see no harm in firemen taking odd jobs on their off-time, providing they do not keep some unemployed person from that job. In our city there are many times when a business man needs help for a few hours, or a day, and men are hard to get for these short, temporary jobs.

The advantages of such practice are: The men are generally available for off-duty call. They are more content when they can earn extra money for the things they cannot afford on a fireman's pay. It gives them something to do and keeps them out of mischief. It keeps them in better physical condition. It might be considered an added incentive for a man to join the department.

The disadvantages are: In some cases a temporary job becomes a permanent job with a man off each shift working opposite each other, which in effect, is a steady job. The men take jobs and do work that is in competition to men making their living at such work. In some cases, where men are working steady, they are keeping some unemployed man from a job. In many cases the men become engrossed in their off-duty job and, in effect, they are working for the fire department on their off time from their other job. The last mentioned causes the men to lose interest in their jobs as firemen.

### KITCHENER, ONT.
### K. R. Putnam, Chief

During World War II, there was a definite scarcity of manpower; the members of this department were granted permission by city council to engage in various jobs on their off-duty hours, but not necessarily on defense work.

Soon after hostilities ceased, the former rule was again enforced which prohibited men from working on their off-duty hours. And to give the Fire Chief the authority to strictly enforce this rule the Kitchener Firefighters Association, Local 457, International Association of Firefighters, inserted a clause in their working agreement which states in part, "Each employee shall be a full-time employee of the Kitchener Fire Department and any employee doing any work outside such employment for remuneration either directly or indirectly, shall be subject for the first offense to suspension of not less than one week at the discretion of the Fire Chief and for the second offense, to immediate dismissal.

The salaries of the fire fighters have, in many instances, lagged behind those paid in industry, due to the fact that when bargaining committees are negotiating with municipal councils for better salaries and working conditions, dual jobs is one of the first arguments used by municipal authorities to keep the salary of the fire fighter down.

There just isn't any justification on the part of the fire fighter who insists on engaging in part-time employment

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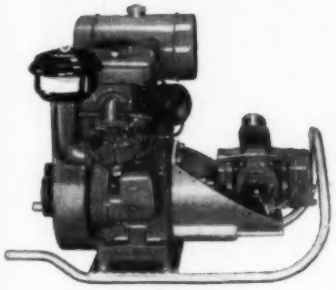
famous for power plus portability



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**With "sled-type" mounting and weighing only 150 lbs., the WX-10 has the portability and maneuverability of a much smaller pumper . . . even in rough terrain. Equipped with electric starter the WX-10 is ideal for tanker use and other semi-portable applications.**

***Dimensions:***
Length 30". Width 21". Height 22".

***Weight:***
150 lbs. (with starter 170 lbs.)

***Performance:***

| Pressure..... | 50 | 100 | 150 | 200 | 225 | 250 |
|---|---|---|---|---|---|---|
| Gallons per minute | 40 | 38 | 37 | 36 | 35 | 32 |

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**PACIFIC** *Marine Supply Co.*
FIRE EQUIPMENT DIVISION
SEATTLE 1, WASHINGTON


and then expects the taxpayer to pay him a better salary when he does not devote his whole time to the fire fighting profession.

My personal opinion is that the fire fighter shall always be at a disadvantage in improving his status in the field of fire fighting so long as this condition exists.

### PROVO, UTAH
**Dean B. Muhlestein, Chief**

We do not restrict the men from working off-duty jobs. We do demand they maintain telephone contact, in case we need them.

I personally feel that if the firemen resort to off-duty work in lieu of better wages, they are retarding their chance of salary increases. It tends to appear that when a man is working around the clock he does not concern himself about salary matters as much as the man working one job.

The advantages to working off duty are merely better living conditions for the fireman's family. In some cases it may keep a fireman in better physical condition.

The disadvantages far outnumber the advantages, in my opinion. Although a fireman may supply better living for his family, he sacrifices his family life, and free time for himself to relax, by holding down the other job. It is impossible for a man to serve two masters.

As a final summary: It is the amount of off-duty work each individual is doing that should guide us in a decision of whether it is right or wrong.

### HAMILTON, ONT.
**E. J. Nixon, Chief**

The Hamilton City Council rescinded the by-law which prohibited men from working on off-duty hours and at the present time a larger number of Fire Department personnel are taking advantage of the opportunity to increase their earning power.

Before the by-law was rescinded, it was found difficult to enforce.

There are certainly no advantages as far as the Fire Chief is concerned. The disadvantages could be adverse public opinion that firemen will take jobs that are detrimental to other workers earning a living. Fatigue from off-duty work could result in poor physical effort on the job of fire fighting.

Many fire fighters object to doing trade work in the stations, yet they follow a trade while off duty.

Fire fighters, the large majority organized under the banner of the A. F. of L. with the International Association of Fire Fighters, should adopt the policy of one man, one job.

The argument that salaries have lagged behind those of private industry is no doubt true, but it is also true that in major cities where salaries are high, the fireman seeks to hold off-duty jobs.

### FARGO, N. DAK.
**F. E. Saefke, Acting Chief**

Our men are permitted to have private employment when off-duty, a practice which was established during World War II and has never been discontinued because of some pressure from the public and from the members of the Department.

I am not opposed to the men working


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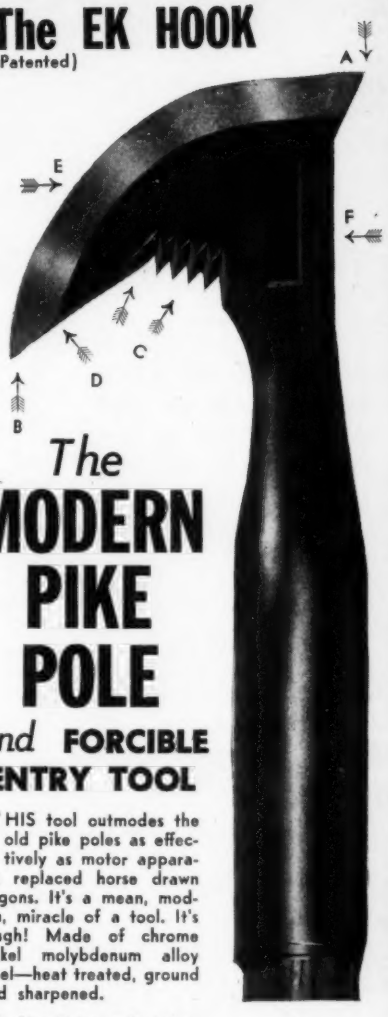


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and helping others when needed for a few days, but I am strictly against firemen working full-time at private employment. There are several reasons for my opposition, among which are the fact that many have created full-time, off-duty employment and that some have created businesses of their own in competition with other business. By permitting conditions of this kind to exist within the Department, it creates an ill feeling among the men and also with some of the business people. It also creates a lack of interest in the Department, especially in the different branches of the Department, such as the Fire Prevention Bureau, the Alarm Operators and others requiring 8 hours per day employment. This 8-hour day, which some of the men are required to put in, prevents them from earning money outside of the Department and for that reason a feeling of ill-will is established. All in all, I feel that private employment when off duty creates a lack of interest in the Fire Department.

### CUMBERLAND, MD.
### V. A. Parker, Chief

This department permits off-duty members to take spare time work only. All members must leave with Fire Headquarters: telephone numbers, locations, etc., when off duty.

Where salaries of firemen are lower than that of private industry, we believe it justified to permit spare time outside work, but never to a point where members consider the Fire Department a secondary job, or a place to rest up. The Fire Department makes daily inspections of all stations, men on duty and sick members.

The advantages of allowing men to work at outside jobs on their time off are that the job keeps men at known locations and thus they may be contacted sooner in case of emergencies, helps out the family budget and keeps the men in better physical condition.

The disadvantages are that some members consider the fire department a secondary job, members feel too independent, that they may have trouble with local unions, and that the general reaction of the public is not good.

(*To be continued*)

## With Our Readers

### Sides With Fire Service on Use of Parkways

*To the Editor:*

I was particularly interested in your Editorial in the June (1954) number, anent the prohibitive rules of the parkways.

Our member corps have long suffered from this same rule (refusing to fire and emergency vehicles the right to travel on city, county and other parkways) and have done everything in their power to circumvent it, even to direct correspondence with Commissioner Moses (New York City).

His replies have indicated that he feels it is quite all right for an ambulance to move along routes where traffic lights are operating, rather than reaching their objective over the most rapid routes possible.

From his attitude, we judge that

YOU...*may be up on a ladder but you're . . . "Never out on a limb" with a*

MANN Axe

When you swing a MANN AXE you can feel its perfect balance and its fast-slashing edge. These craft-made Fire Axes carry plenty of "authority" when you're in a pinch. YOU MIGHT AS WELL HAVE THE FINEST . . . WHEN LIVES DEPEND ON IT!

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**EDGE TOOL CO.**

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**Making America's VERY FINEST Axes Since 1843**


Commissioner Moses has never experienced the need of being rushed to a city hospital from some suburban point 25 miles distant, under express and urgent orders from a stand-by surgeon that "TIME IS OF THE ESSENCE."

It is indeed fortunate that the officials of the Port of New York Authority are more broad-minded and sympathetic toward sick and injured citizens, as they gladly expedite any movement via their bridges and tunnels, even without fee.

Perhaps you will feel that our complaint is not germane, as we are not, strictly speaking, a firemanic body. But I am happy to inform you that most of our men are members of volunteer fire companies. And this body was formed for the express purpose of expediting operations and training of corps members, after the manner of our sister organization, the New Jersey State First Aid Council, Inc. And our vehicles are not even as much "commercial" as a paid fire chief's car, for most of ours are owned by voluntary groups and not bought with municipal funds.

Cordially yours,
WILLIAM CHARTERS, President
New York State Volunteer Ambulance and First Aid Association

Nyack, N. Y.
July 3, 1954

## Plug for the Portable Pump

*To the Editor:*

This letter has to do with an article in the June 1954 issue of FIRE ENGINEERING, in the "Short Cuts and Gadgets" section under the title "Getting Water for Rural Fire Fighting."

Here in Orleans we have a portable pump which we got in 1952 and which we regard as worth its weight in gold. The first time we used it, a barn was all afire and the house was but a few feet away. All the water we had was 550 gallons in our booster tank. A well 200 feet away could not be reached by the trucks due to snow, but we used our portable pump and had plenty of water to save the house.

Around here the farmers don't even build a pond, or dam up a brook, and you can't make them do it, either. They all say it's a very good idea—but they don't do it.

There may be, and probably are, better ways to meet water shortage than I have told of. If so, I would like to have them. Orleans is a village of about 1,300 population and has a volunteer department of 34 men and two trucks.

We have used the telephone for as long as I can remember to notify our No. 1 fire crew, which consists of 9 to 12 men, for chimney, out-of-town grass fires and any emergency that may arise. Now we use a coded number on our Gamewell system which we have had all the time but only used for large fires. Now with our new system we can get out in half or less the time it used to take us.

If any small town has an alarm but doesn't use it for anything but big fires, I believe it would be to their advantage to use it for all fires and emergencies. If anyone would like to know about our system I would be glad to hear from them, and I would like information, too, that might help us better our system.

EMILE E. LAPIENE
2nd Asst. Chief
Orleans, Vt., Fire Dept.


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Greater Protection More Freedom of Movement

**in ISSCO's new aluminized asbestos turnout coat**

Here's a turnout coat that's light, pliable, heat-reflecting, and water repellent as well. This new ISSCO coat is far less cumbersome on a ladder; far more effective up close to a fire where its highly polished aluminized surface (not mere foil) reflects most of the heat. Coat has wristlets sewn into sleeves, is wool lined to the waist (for winter comfort), and fastens with big easy-to-manage snap hooks.

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**when heat is intense**

Use ISSCO's heat-reflecting aluminized asbestos hood and gloves. Gives you that extra protection around face and hands in approaching fire and in flash-backs. Hood has built-in helmet—adjustable to size: ¼" laminated safety glass window. Gloves shown are ISSCO 114-AL (One of many styles we furnish).

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Simply scratch the tip, place at base of chimney and the fire is quickly extinguished with smothering gases.

**Volunteer Fire Companies: Write for details of plan to raise money for your department by selling Chimfex to home owners.**

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# The WATCH DESK

Overhauling the firemanic news of the day

by ROI B. WOOLLEY

### Who Said It's a Man's World?

Down Scituate, Rhode Island-way, Mrs. Fred S. Picket pretty nearly astonished a motorist off his rocker last July. "There's a fire down the road—call the fire department!" the motorist yelled at Mrs. Picket.

"You're talking to one-third of the fire department right now," responded Mrs. Picket.

Mrs. Picket (who incidentally drives the fire truck), telephoned Mrs. Earl Colvin (who handles the hose—er, fire hose, that is), to sound the alarm, and by the time she got to the fire station, Mrs. Walter Johnson (she's the "caretaker" of the pump) had the doors open.

And a-w-a-a-a-a-y we go-o-o-o-o! Out rolled the Pottesville, R. I., Fire Department to fight a brush fire.

"Mebbe they think it's a joke," opined Mrs. Picket, "but it isn't. What with all the men commuting to work, there's no one else around to fight fires until other departments can get here."

THANKS GEORGE WARREN.

* * *

### Freak Accident in "Safety Area"

One of those "it-won't-happen-in-a-hundred-years" freak mishaps injured four persons in Atlantic City, N. J., on August 31 last.

A laddertruck, answering an alarm for a fire in a dress shop on Atlantic Ave., was passing a safety zone on that thoroughfare at the corner of North Carolina when a life net on the rig slipped from its moorings, struck a safety island standard, which in turn hit four persons standing on the island at the time.

The apparatus, tractor-tiller type, was proceeding at normal speed when the compartment housing the net came open from some unexplained cause, and the net slipped out just as the truck was passing the safety island. The flying net and standard in turn struck two women and two men, causing leg injuries, which were treated at Atlantic City Hospital., None of the victims suffered severe hurts.

The fire? A trivial blaze that was quickly snuffed out by fire fighters in charge of Battalion Chief Francis Wilson.

* * *

### Vamps Bring Reprieve for Dying Fish

All in line o' duty, say the vamps of the Huntington Valley, Va., Volunteer Fire Company, who lost considerable sleep "wet nursing" oxygen-shy fish August 4 last.

If fish can be grateful, there are several thousand very appreciative bass and bluegills in a pond near Philadelphia, Pa. Their thanks would be directed to the Huntington vol's who hurried over to aerate the three-acre lake so the finny tribe would not die from lack of oxygen.

Passersby noticed the fishes' plight as they drove past, and decided there wasn't enough oxygen in the stagnant pond. They rigged up a makeshift pump, sucking water out of the pond and spraying it back in the form of man-made rain. But the pump wasn't big enough. So they notified Fish Warden Thomas Karper, who discovered the water temperature in the pond was much too warm for bluegill or bass.

Then somebody thought of the volunteer fire fighters, and the Huntington Valley vamps brought their pumps and hose lines. Someone donated some big cakes of ice from an ice house and "all hands" went to work.

"They saved most of the fish" said Warden Karper, happily.

* * *

### Smoke—Sparks—But Nyet, No Fire!

It was chilly the night of July 5 in New York City, but hardly a night you'd want a roaring blaze in the fireplace.

That's what alerted a woman passing by Park ave. at 68th st. Manhattan. just before midnight. Sparks were shooting out of the chimney.

She didn't know it, but the building is headquarters of the Russian delegation to the United Nations. She hot-footed it to the nearest fire station and sooner'n quick, two fire companies rolled up to the front door, and right smack into another Russian veto.

A burly and rather surly guard glared dourly out from behind the iron grill at the blazebeaters and said in reasonably good English "Go away, please!" adding (contrary to Russian rules not to explain anything, at least truthfully) something about "usin~ the fireplace."

Manhattan fire fighters observe protocol—if nothing else. So rebuffed or not, they packed back their spaghetti and headed for quarters. But around the firehouse coffee-pot—and out on the street among the rubberneckers who always collect whenever the rigs roll, there was much pondering of what was going on. Could it be, like the thrillers in the pulps, the ambassadors extraordinary, and the ministers plenipotentiary were burning their code books and secret documents on the eve of war? Thanks to the many who sent in this gramitem, including the *N. Y. World-Telegram and Sun*)

* * *

### Serenity of Placid L. I. Village Shattered in Mock C.D. Test

Everybody in on the know says heaven help the Long Island, N. Y., Community of Port Jefferson if a real atom bomb ever comes along. A make-believe one is bad enough.

As part of a Suffolk County civil defense drill, a 52-inch simulated bomb was set off, with these results.

Eighty house winodws were blown out, or in.

Six plate glass windows were shattered.

A chandelier loosened from a restauarnt ceiling dropped and injured a woman.

Two women fainted.

One man had a heart attack.

A car was damaged by flying glass..

A dozen dogs went temporarily berserk.

The simulated bomb had been used without incident before. Its makers could only surmise that it gained unex-

# FIRE!

## INSTANT RESPONSE

*with*

## "FA-20" and "FA-26" Grounding

*Fire Alarm Boxes*

**FA-26 FIRE ALARM BOX**
Showing door closed

**FA-26 FIRE ALARM BOX**
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## SIGNAL COMPANY

**MOLINE** **ILLINOIS**


pected power because Port Jefferson is in a valley and the hillside magnified the blast.

But that wasn't all.

As dazed and dizzy C.D. workers regrouped after the explosion, they completely forgot about two low flying jets planes that roared overhead by prearangement. The sound further unnerved the C.D. workers and they hit the dirt in panic.

Once again they regrouped, only to scatter anew when a civil air patrol plane arrived and began dropping "emergency supplies." Some of them nearly brained the shaken C.D. workers.

"Was all this unexpected?" C.D. Director Kenson Merrill was asked. "Completely" he gasped!

* * *

### A "Current Report"—"Gremlins!"

The good folks of Little Beaver Creek, near Elkhorn City, Ky., are still talking about the shock they got not so long ago when "fiery gremlins" skipped across the power lines.

It went down in the records as "unexplained electrical disturbances" but this is a bit of what happened:

Herby Sloane's furnace caught fire from the electrical circuit and Sloane needed hospital care for burns suffered when he tried to turn off the stoker.

Luther Salyer's television set broke out in flames. He put 'em out, helped Sloane with his fire—then learned that his own furnace had caught fire.

A store building was ignited by the mysterious hot wires.

Fluorescent fires shot up around a utility pole ground wires.

Firemen, dashing hither and yon, were too busy to report operations.

Later, everything toned down and quiet reigned. But residents were reluctant to go near anything electrical for hours.

Thanks IRVING JOHNSON

* * *

### "Smoky" Lives Up to His Monicker

Out Los Angeles-way one "Smoky" George Bass of the Vernon Fire Department and "hot" Box 15 Club member, is a smoke-eater 24 hours a day.

During off-duty hours he takes a busman's holiday, hustling to fires anywhere in the L.A. area with his trusty camera. He keeps a fire helmet and turnout in his car.

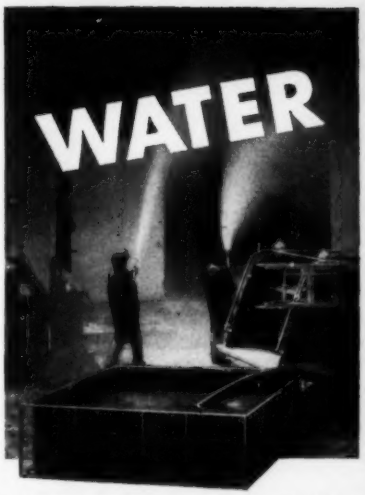
The night of July 7, cruising near Bell Gardens, Smoky saw flames from a grain mill fire in Paramount, over yonder. He stopped at L. A. County Eng. 39 station to get the exact location and shot off to the fire.

Arrived on the scene, he unlimbered his trusty camera but the fire fighter's spirit in him was just too much. "I saw a man trying to hold down a big line," he said, "and he was having trouble, so I pitched in to help."

Smoky was doing fine until a hunk of galvanized iron fell on him and cut his finger deeply. He was taken to Rancho Los Amigos Hospital for first aid treatment, and was back on the job at the Vernon Fire Department next morning.

"He did a fine job" L.A. County Battalion Chief William Sherrill commented. "With that fire helmet on I thought he was one of our men."

As a sort of postscript: On July 15th, Smoky and fellow fireman Jay Chapanar of the Vernon Fire Department were overcome with heat while fight-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***WHEN—you need it!***

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Get complete details and free trial offer on FOL-DA-TANK, NOW! It may save many times its cost in property protection during a single fire.

**FOL-DA-TANK Co.,**
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Gentlemen: Please rush complete details and FREE TRIAL OFFER on FOL-DA-TANK.

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- No connecting to electric socket
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FIRST AID EQUIPMENT

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Electrically welded 20 gauge steel, dust and moistureproof cases provide complete protection of contents and long service.

10, 16, 24 & 36 Unit Kits
For FIRE HOUSES & VEHICLES

*Write for free sample*
P-K BURN OINTMENT

THE PAC-KIT COMPANY
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GREENWICH, CONN.

ing a hot one at the L.A. Steel Casting plant, 6100 S. Boyle ave. Both received treatment at the scene and returned to work. Thanks GLEN ALTON

* * *

### All Boxed Up?

The good citizens of Boston and Dedham, Mass., who live ferninst the border line have gotta have a discriminating eye when a fire emergency arises and they want to call fire fighters. Else they're likely to be "all boxed up" and call the wrong outfit.

Boston box on right; Dedham box on left.

According to Contrib' Edmund A. Burchard, who snapped the accompanying picture, the two fire alarm boxes are mounted on the same pole at the corner of Washington and Sohofield Sts., Boston, or is it Dedham? The one at the left is Dedham Box 18; the one on the right side is Boston Box No. 2995.

This ought to be another "First" for FIRE ENGINEERING!—certainly this Column has never before heard of two separate fire alarm boxes serving two different communities on the same pole.

Of course the situation needn't be as confusing as it may seem: no matter which box is "pulled" we reckon Mr. Citizen is gonna get quick action from some fire force, somewhere!

* * *

### A "Free-Way" for Firemen on Thruway

The question, when there's a fire on New York's Thruway, must volunteer (or other) firemen pay tolls? Well, the answer to this'un seems to be clear. "No!"

Firemen in 24 cars and two pieces fire apparatus from Mendon and Fishers, N. Y. who answered a trooper's alarm at 1:00 A.M. on Aug. 18, were given toll tickets at the Victor interchange and returned there after extinguishing an automobile fire.

The toll-gate keeper, in line of duty, thought he should collect. The firemen, roused out of their beds also in line of duty, thought that he shouldn't.

The keeper of the gate decided to consult Thruway officials. He did. And the firemen went home free. Thruway officials on the 18th ruled that volunteers going to a blaze on the Thruway will be issued special free tickets. All toll-gate keepers are being notified.

QED: What comes when firemen attempt to use the Thruway during civil defense and mutual aid tests?

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PORTABLE
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Light
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Pioneer generators are modern in design, compact, require little space, and are ruggedly constructed. A variety of models are available mounted on skids for easy handling and pick up.

***WRITE TODAY** for illustrated catalogs and prices on 250 to 3600 watt units built by Pioneer for Fire Department use.*

PIONEER Gen-E-Motor Corporation
5832 West Dickens Ave., Chicago 39, Illinois

## Asphalt Plant Fire

(*Continued from page* 917)

He admitted that explosions have occurred before in hot mix plants, but they are by no means a common occurrence.

The blast came about noon and, fortunately because of that fact, about 20 other men had only just moved away from the immediate plant area to eat lunch in the company building a few hundred feet away and were beyond reach of the blast. None of them was injured.

The four dead men were all employed at the plant.

Among those who had left the blast area only two minutes before the explosion was District Highway Commissioner John A. Durkee. He and two other state officials were at the works concerning an order which the Marble Company was to execute for the state.

The body of one of the victims was tossed 235 feet from the point of explosion and was not found for two hours. The other three bodies were found near the explosion scene. One was thrown clear of the plant to the west, another found below the fuel tank, and the fourth recovered from the top of the cab of a crane.

Witnesses to the blast immediately telephoned the Proctor Fire Department which was quickly on the ground. Additional apparatus from Pittsford, and Rutland's Engine 1 and service car, with Chief Alfred H. Koltonski, and Captain James J. Rice, were also called. However, owing to the danger of an explosion in a nearby fuel tank, fire fighters were forced to standby at the outset.

About 1:15 P.M., Pittsford and Proctor firemen doused the ground and still-smoldering equipment with water fog and foam to permit the recovery of the bodies of three of the victims.

The blaze roared fiercely, giving off heavy clouds of smoke to blot out the noonday sun for about 30 minutes, according to company officials.

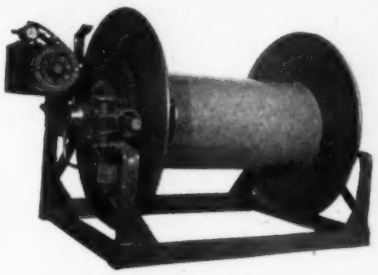
The explosion picked up the huge steel asphalt tank and tossed it end-over-end against an arm of a large crane clam-shell about 25 feet to the north. The bottom of the tank was ripped and torn and the top was bashed in. The south end of the horizintally placed fuel tank was bent and twisted, but withstood the blast pressure enough to prevent the fuel oil from escaping. A thick coating of asphalt covered a wide area around the site of the explosion.

Damage was estimated in excess of $25,000.

## Segregation Ends for D.C. Firemen

The District of Columbia Fire Department, only remaining public service in Washington with racial segregation, is yielding to President Eisenhower's policy of race equality in government.

District Fire Chief Millard H. Sutton stated that 14 Negro firemen will be transferred from the five overstaffed Negro companies to posts in some of the 30 white companies where they are needed. Mr. Sutton is carrying out an integration order issued by the district commissioners on Aug. 18. Segregation in other parts of the district government was ordered abandoned last November.

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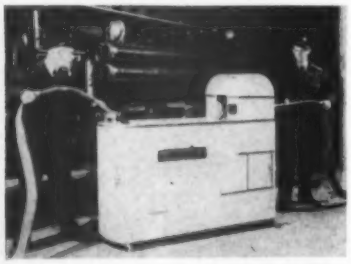

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## Full Schedule of Technical Topics and Recreational Activities Provided

FEATURING an outstanding group of speakers, the program of the 81st Annual Conference of the International Association of Fire Chiefs, to be held at Houston, Texas, October 18-21, has just been released by Association Headquarters. Included are a wide range of topics, covering such subjects as the control of natural gas fires, under high pressure; large area fires; protection against nuclear bombings; hotel and safety; research; industrial fires; trends in fire training, etc.

**PROGRAM**
**81ST ANNUAL CONFERENCE**
**INTERNATIONAL ASSOCIATION OF FIRE CHIEFS**
**HOUSTON, TEXAS, OCTOBER 17-21, 1954**

**Sunday, October 17**

2:00 P.M.—Registration—Rice Hotel
2:00 P.M.—Board of Directors Meeting
4:00 7:00 P.M.—Open House. Public to Exhibits

**Monday, October 18**

All Day—Registration—Coliseum
9:00 A.M.—Exhibits Open—Coliseum
10:00 A.M.—Open Meeting and Memorial Service—Music Hall
Presiding—Chief Henry G. Thomas, President
Master of Ceremonies—B. J. Barrodale
Invocation
Posting of Colors
National Anthem
Introduction of Host Chief, Joseph W. Lobue
Introduction of Officials and Distinguished Guests
Address of Welcome—Hon. Roy Hofheinz, Mayor
Response to Address of Welcome—Chief C. Gray Burnett, First Vice President
President's Annual Address — Chief Henry G. Thomas, President
Memorial Service—Chaplain F. M. Johnson
2:00 P.M. — Chief Henry G. Thomas — Chairman
Business Meeting—Music Hall
3:00 P.M.—GOOD PUBLIC RELATIONS—A MAJOR FACTOR IN GAINING PUBLIC SUPPORT
Chief R. C. Malmquist, Minneapolis, Minnesota
4:00 P.M.—THE FUTURE OF THE FIRE SERVICE
Percy Bugbee, General Manager, National Fire Protection Association, Boston, Massachusetts
2:00 P.M.—Tour for Ladies (of Houston, Battlegrounds, Battleship Texas)
8:00 P.M.—Cocktail Party—Rice Hotel, Ballroom, Mezzanine Floor
9:00 P.M.—Fire Chiefs' Ball—Rice Hotel Ballroom, Mezzanine Floor

**Tuesday, October 19**

All Day—Registration—Coliseum
9:00 A.M.—Exhibits Open—Coliseum
9:30 A.M.—Chief C. Gray Burnett, Chairman
Business Meeting—Music Hall
NOMINATION OF OFFICERS
(As per Sec. 20, By-Laws)
FIRE PREVENTION EDUCATION IN THE SCHOOLS
Marvin E. Meador, First Assistant Chief Engineer, Los Angeles Fire Department
10:00 A.M.—THE USS LEYTE AND THE USS BENNINGTON DISASTERS
Henry S. Morton, Commander, U.S.N., Washington, D. C.
11:00 A.M.—IMPACT OF NEW MILITARY WEAPONS ON THE FIRE SERVICE
Kyle Laughlin, Specialist in Thermal Research and Weapons Effects, Federal Civil Defense Administration, Battle Creek, Michigan
1:30 P.M. — Chief William Fitzgerald, Chairman
Business Meeting—Music Hall
CONTROL OF NATURAL GAS FIRES
Alden W. Allen, Senior Mechanical Engineer, Research and Development Division, Ansul Chemical Company, Marinette, Wisconsin
2:00 P.M.—ARE YOUR FIRE FLOWS ADEQUATE?
Dale K. Auck, Fire Protection Engineer, Federation of Mutual Fire Insurance Companies, Chicago, Illinois
4:00-6:00 P.M.—Barbecue, Coliseum
7:00-8:30 P.M.—Premiere showing of new Television film ALARM, starring Richard Arlen as a fire captain. Mr. Arlen will appear personally at the showing.
Ladies Shopping Day (on your own)

**WEDNESDAY, OCTOBER 20**

All Day—Registration—Coliseum
9:00 A.M.—Exhibits Open—Coliseum
9:30 A.M.—Chief Jay W. Stevens, Chairman
Business Meeting—Music Hall
VOTING POLLS OPEN
(As per Section 21, By-Laws)
REPORT ON EUROPEAN FIRE SERVICE
Chief Henry G. Thomas, Hartford, Connecticut, President, International Association of Fire Chiefs
10:00 A.M.—KNOW THE CAUSE
George W. Clough, Fire Marshal, Nassau County, Mineola, Long Island, New York
11:00 A.M. — IMPLEMENTING HOTEL SAFETY
Harold J. Burke, Consulting Engineer, New York State Hotels Association, and former Chief, New York City Fire Department
11:30 A.M.—"OPERATION FIRE STOP"
Dr. R. Keith Arnold, School of Forestry, University of California
2:00 P.M.—Chief Ray Tiller, Chairman
Business Meeting—Music Hall
RESEARCH AND MODERNIZATION IN THE FIRE SERVICE
A. C. Hutson, Former Senior Assistant Chief Engineer, National Board of Fire Underwriters, New York, New York
3:00 P.M.—VOTING POLLS CLOSED
(As per Section 21, By-Laws)
3:00 P.M.—CONTROLLING THE MOVEMENT OF EXPLOSIVES OVER CITY STREETS
Chief E. W. Fields, Omaha, Nebraska
3:30 P.M.—THE GROWING PROBLEM OF INDUSTRIAL FIRES
Dr. Mathew M. Braidech, Director of Research, National Board of Fire Underwriters, New York, New York
4:00 P.M.—TRENDS IN FIRE TRAINING
Richard E. Vernor, Chairman of Fire Department Instructors' Conference, Western Actuarial Bureau, Chicago, Illinois
7:30 P.M.—Banquet—Rice Hotel Ballroom, Mezzanine Floor. Stage Show

**THURSDAY, OCTOBER 21**

9:00 A.M.—Exhibits Open—Coliseum
9:30 A.M.—Chief Henry G. Thomas, Chairman
Business Meeting—Music Hall
10:00 A.M.—AIR CRASH FIRE FIGHTING
Gifford T. Cook, Chief, Fire Protection and Aircraft Rescue Branch, Department of the Air Force, Washington, D. C.
10:30 A.M.—FIRST AID AND RESCUE OPERATIONS
Carl B. Young, Houston, Texas
11:00 A.M.—INSTALLATION OF OFFICERS

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## Annual Reports Received

### British Columbia Losses Down

Fire losses in the Province of British Columbia, Canada, were down from $9,603,231 in 1952 to $8,080,490 in 1953, according to the 32nd Annual Report of Provincial Fire Marshal W. A. Walker.

There were 6,429 fires reported, 147 investigations of suspicious fires and 25 prosecutions for arson, with 18 convictions. In 1953 56 persons died from fire causes, 19 of them children.

During the year a "traveling instructional unit" visited 98 communities throughout the Province, a total of 1,589 persons registering for classes.

* * *

### Worcester (Eng.) City and County Report

Calls on the Worcester City and County Fire Brigade decreased by 368 in the year 1953, according to G. Eastham, Chief Officer, in his Annual Report for the year, largely due to the reduction in chimney fires. During the year there were 1,524 "operational attendances" of which 110 were false alarms.

The report details the "interesting fires," fire prevention work — with emphasis on home inspections, firemanship training, methods of extinguishment (61 fires were "beaten out").

An interesting feature of the report shows the time elapsing between time of discovery of the fire and time of call to the Brigade. The table follows:

| | |
|---|---|
| 0 to 5 minutes inclusive | 459 |
| 6-15 " " | 143 |
| 16-30 " " | 14 |
| 31-45 " " | 6 |
| 46-60 " " | 4 |
| Over one hour | 30 |
| Chimney fires | 546 |
| False Alarms | 110 |
| Special services | 151 |
| Over-the-border calls | 61 |
| | 1,524 |

* * *

### Alameda Fire Losses Down

Fire losses for the fiscal year 1953-4 in the City of Alameda were only $46,741 compared with loss of the previous year of $134,389.50 according to Fire Chief Thomas M. Lane in his annual report. The chief attributes the reduction to cooperation of the citizens in fire prevention and teamwork of members of the department through its training program in extinguishment and salvage operations.

The department answered 729 calls during the year of which 348 were for actual fires. It is interesting to note that smoke ejectors were placed in service 44 times, operating a total of 17 hours.

* * *

### 53 Die by Fire in Oregon

Dwelling fires continue to claim the largest number of victims and heaviest property loss by fire in the State of Oregon, according to the 37th Annual Report of Robert B. Taylor, Oregon State Fire Marshal. In 1953, 40 of the 53 persons to die by fire were occupants of dwellings. Fire losses for the year were $10,697,269.

The report is one of the most completely documented compilations issued by any state and its 116 pages cover not only all the fire protection districts of the State but description and analysis of all fires, fire prevention, arson and other related activities.

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## METHODS OF MAKING PROMOTIONS

THE discussion in this Round Table is a continuation of that which appeared in the September issue on the methods of making promotions.

The generous response from our readers makes it necessary to carry the discussion over to this issue and to the November issue as well.

Readers are invited to send in their comments on this subject. Address replies to Round Table Editor, FIRE ENGINEERING, 24 West 40th Street, New York 18, N. Y.

### Discussion of the Topic

**John A. Laughlin, Chief, East Providence, R. I.:** Promotions in the East Providence Fire Department are made through the rank of captain on the basis of results of a promotional school conducted within the department for this purpose.

A private is eligible to become an applicant for appointment to the school for promotion to the rank of lieutenant provided he meets the time requirements, which will vary according to the personnel available. In the same manner a lieutenant is eligible to become an applicant for appointment to the school for promotion to the rank of captain, provided he has the time requirement in the rank of lieutenant.

Applicants are selected for both schools on the basis of qualifications with points allowed for each of the following items: seniority in the department; seniority in the division in which he is applying for promotion; military service; conduct; efficiency based on a competency report in effect in the department and on a written examination. Applicants attaining the highest scores are appointed to the school.

An appointee must complete the course of training as set forth, during which time points are allowed for field problems, written examinations, and competence as observed during the course.

The Director of Training grades the appointees on the items mentioned above and all appointees having attained a score of at least 65 are considered to have passed the course and are eligible for promotion.

Promotions are made by the Town Council from a list certified by the Chief of the Department. Promotions are made in the order of the graded scores beginning with the highest score.

**Hoyt M. Ayers, Chief, Birmingham, Ala.:** I believe the best method for making promotions in a paid fire department is by competitive examination, plus an interview given by the chief. The examination weights are as follows: Written competitive test, 80 per cent; interview by chief, 20 per cent.

**E. E. White, Chief, Anniston, Ala.:** Our present civil service law provides for competitive examination for promotions of officers. The chief can select one of the three men who are at the top of the eligible list. The chosen candidate is then put on a probation period for six months.

**G. L. Nalley, Chief, Little Rock, Ark.:** I believe that competitive examinations are the best way to obtain the best qualified man for promotion. Of course, I think the recommendation of the chief, as well as the seniority of the man should also be given a high rating in making the promotion.

**G. Napoleon Guevin, Chief, Manchester, N. H.:** I believe the chief of department, particularly in the smaller paid department, is the most qualified to recommend promotions. The all-round ability of his men is best known to him.

Competitive exams, particularly of the civil service written type, are not always a criterion of the best leadership material.

**Raymond C. Rumery, Chief, New Rochelle, N. Y.:** The method used in this department is to appoint men in numerical order from a civil service eligible list.

**H. A. Smith, Chief, Honolulu, T. H.:** I believe the recommendation of the chief is the best means of making promotions in a paid fire department.

Only when the size is sufficiently large as to prevent the chief from knowing personally each member of his department and that member's background and qualifications, should other means be employed.

### HERE ARE THE QUESTIONS

1. **What method do you believe the best for making promotions in a paid fire department?**
   a. **By recommendation of the Chief?**
   b. **By competitive examination —to get the best qualified men for officers?**
2. **Should the size of the department be considered in deciding the way in which promotions are to be made?**

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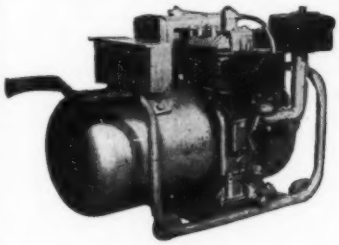

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**John Krusenklaus, Chief, Louisville, Ky.:** I would recommend that promotions be made by competitive examination with considerable weight on the oral portion, and that the names of the members making the top grades be submitted to the chief and appointments made by his recommendations. Several names are certified for each promotional vacancy.

**R. C. Malmquist, Chief, Minneapolis, Minn.:** I believe most promotion examinations should be competitive as is done by our local civil service commission. The only promotions in this department which are not competitive are those of deputy chief (three) and fire inspector. I believe a fire chief should be able to pick his own deputies from his staff of chiefs, and that fire inspectors should be picked for their qualifications, personal and otherwise, as we do here.

The only drawback, however, with competitive examinations is that, from time to time, some of the top-ranking men on the list, who stand high on written examinations do not have the quality of leadership. It may be, in smaller departments with an unbiased chief, that promotions could be made on his recommendations from his own personal knowledge of their qualities. However, in a large department, I believe competitive examinations will bring out the best men in a majority of cases.

**Harry J. Sommers, Chief Engineer, Newark, N. J.:** I have always been a firm believer in promotions by competitive examination, having received each promotion from captain to chief in this manner.

However, occasionally we find some who feel that recommendations by the chief or appointing authority would produce the better qualified man. I question this most emphatically, and I am sure that in far greater percentages of cases the man successfully passing the competitive examination will prove superior.

Placing the selection of officers in the hands of the chief or appointing authority exclusively, tends to create within the department a trend to curry favor from these officials. The feeling of independence and fair deal is obliterated. Creating an incentive is vitally important and compels men to prepare for promotion, whereas if controlled by any other method the men use an indifferent approach.

Only in exceptionally small departments should any other method of promotion receive consideration. In cases where the personnel is extremely limited, it may not be prudent to go through the procedure of examinations.

**James H. LeStrange, Chief, Berkeley, Cal.:** I have worked under both systems and believe that making promotions by competitive examinations is the better one. Our promotional examinations have four phases and are as follows:

1. Written examination—Weight 50 per cent—based on methods and fire fighting techniques used in our own city with the number of firemen and apparatus on which the men are drilled, department rules and regulations, practices and procedures and fire prevention procedures.

2. Personal interview—Weight 30 per cent—Candidate is interviewed by

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# *Chief---*

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chief officers of other fire departments, a businessman or a personnel director from another city or a factory. Captains, lieutenants and engineers or apparatus operators can be interviewed by the chief officers of the department.

3. Service Rating—Weight 20 per cent—This should also be a part of the examination. In our department, ratings are made every six months for each member by captains and reviewed and signed by the chief, the deputy chief and the district assistant chief, as well as by the member being rated. This keeps the men alert and constantly striving for a good service rating because they know that it is going to help them on the next promotional examination.

4. Seniority—Weight .02 of a point per year.

No men should be eliminated until he has completed all phases of the examination. Whatever his total score may be, would establish his position on the eligible list. The chief may pick any man of the top three men on the list.

**Walter J. Adams, Chief, Rochester, N. Y.:** I do not believe that promotions in a paid fire department should be made by the chief as this, in my opinion, tends to lower morale and the results of such promotions could greatly affect the efficiency of the department.

I believe the department will get the men best qualified through competitive examinations. Men who are in the fire service and who are making it their vocation will study and prepare themselves for examination, and thereby any department, in my opinion, gets the best qualified personnel for officers.

I do not believe the size of the department should be considered in deciding how promotions are to be made, especially if the department is a paid department.

**B. H. Brown, Chief, Macon, Ga.:** This department makes promotions by seniority and examination. The Seniority Board consists of seven members, four of whom are elected by vote of the men and two appointed by the chief to serve with him or his alternate. The Board is changed every year.

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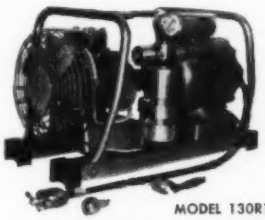

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**Paul Pennington, Chief, Orlando, Fla.:** In fairness to all members of the fire department, I believe that promotions should be by competitive examination. Anyone receiving a promotion in this department is on probation for the first year. This gives the officers plenty of time to find out if the man is capable of serving in the higher grade, and if not, he is reduced to his former grade. If he passes the probationary period satisfactory, he is certified as permanent in grade.

I fail to see where the size of the department should make any difference in deciding the way in which promotions are to be made.

**L. Strange, Chief, St. Johns, Newfoundland:** Our procedure for making promotions is to hold competitive examination on instruction previously given to the men regarding their duties as firemen; discipline and efficiency during their training.

After the examination is concluded and the results obtained, the chief makes his recommendation for promotions. The senior officers get the preference, provided all things are equal such as the result of his examination and his personal character.

This department does not consider the size of the department in deciding the way in which promotions are to be made, but tries to instill into the officers the extra responsibility which is theirs, owing to the size of the department, so that the same will be carried out with efficiency.

**Zephrin F. Drouin, Chief, Lewiston, Me.:** I believe promotions in the fire department should be based on a written examination and an oral examination plus a competency examination on practical work. Promotions should also be made on the recommendations of the chief engineer, for he knows the qualifications of the men.

The size of the department should not be considered in deciding the way promotions are to be made. It is my opinion that the best men should be secured for fire fighting and public safety. Men might have excellent I.Q.'s but might be unqualified in workmanship or leadership for the fire service. Too many in years past have been highly intelligent, but were afraid of high places or afraid of smoke, etc.


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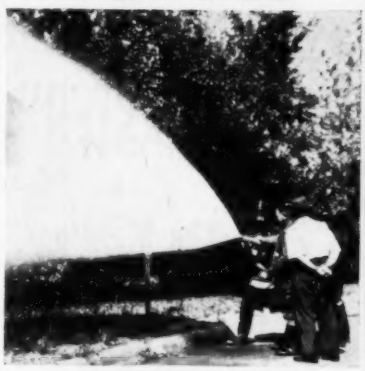

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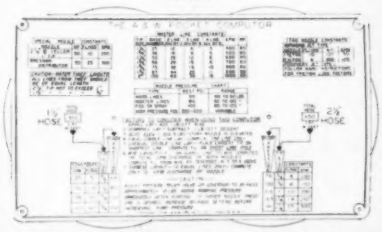

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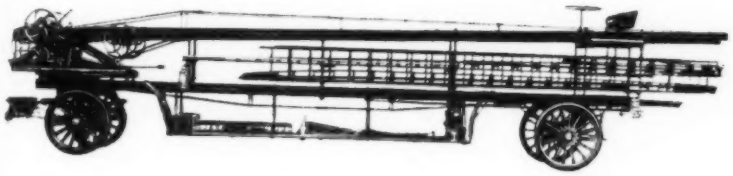
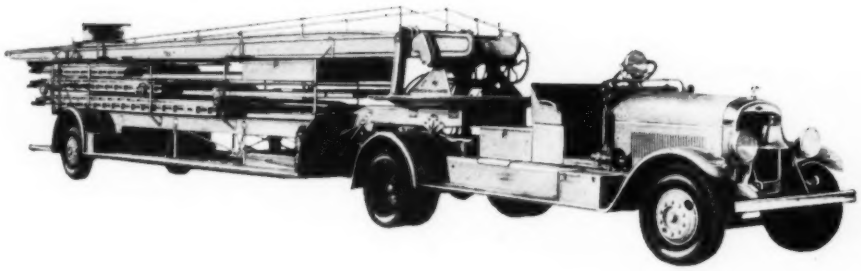


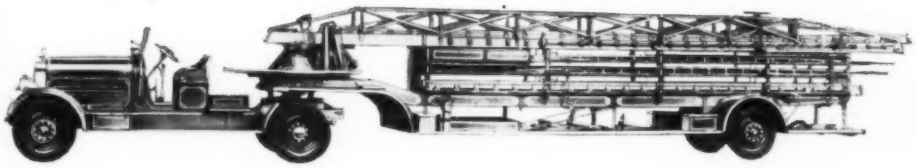
## 1912

85′ Pirsch Three-Horse Hitch Aerial Ladder Truck.



## 1931

85′ Pirsch Hydro-Mechanical Aerial Ladder Truck. America's first All-Powered Aerial.

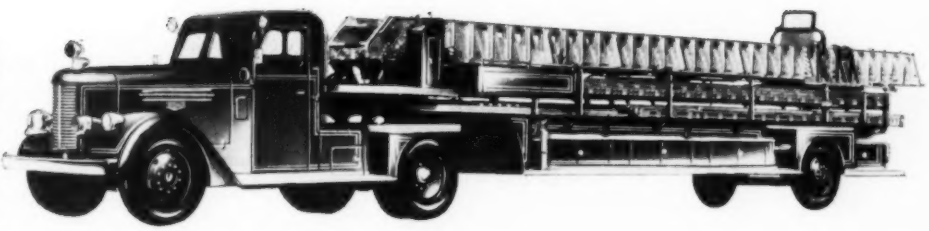


## 1934

100′ Pirsch Aerial Ladder Truck. America's first 100′ Aerial and America's first All-Metal Aerial Ladder.

## 1954

100′ Pirsch Aerial Ladder Truck with latest Pirsch built aluminum alloy main and ground ladders, and Pirsch built two-door cab, also other modern features.



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*America's Safest Fire-Fighting Apparatus*

*Write today for free folder with color pictures and full details on* FWD's new SPECIAL "500" Fire Engine.

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